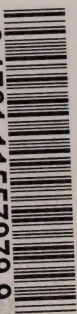



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Mineral Industry Report
1969 and 1970
Volume 2

Northwest Territories
East of 104° West Longitude

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MINERAL INDUSTRY REPORT

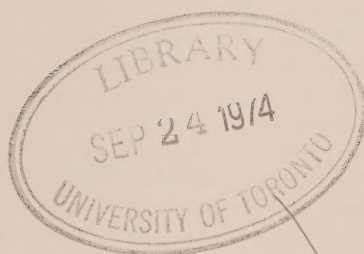
1969 and 1970

Volume 2

Northwest Territories
East of 104° West Longitude

by

P.J. Laporte



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INTRODUCTION

Exploration in the District of Keewatin before 1969 has been briefly described in published papers by Wright (1967), Baragar (1962), Schiller (1965), Thorpe (1966, 1972), Eade (1966, 1971), Davidson (1970) and Bell (1970, 1971). This report is a review of the exploration work in the eastern Northwest Territories for the years 1969 and 1970. It is based on information obtained from visits to the properties, technical reports, newspapers, trade journals, publications of the Geological Survey of Canada, and the monthly reports of the mining recorders in Ottawa and Yellowknife. The author acknowledges with thanks the co-operation of companies and individuals in the mineral industry and members of government agencies.

EXPLORATION IN 1969-70

A substantial increase in mineral exploration in the eastern Northwest Territories occurred in 1969 and 1970. Huge tracts of land, until then unexplored, were acquired under prospecting permits and subjected to thorough geological and geophysical study. The predominance of airborne geophysical surveys in the various programs is a marked change from previous studies done in the area. Extensive geochemical studies were also undertaken in the Arctic islands.

A major factor in the increase in exploration in the area was the 1968 discovery of uranium in a mylonite zone in gneissic rocks of the Wollaston Trend by Gulf Minerals Limited. Eighty-two of the 103 prospecting permits issued in the area in 1969, and some large claim groups in the Padlei area, were acquired mainly for their uranium potential. Most of these were subjected to airborne gamma-ray spectrometer surveys and, where appropriate, ground checking and prospecting of the airborne anomalies. Photogeological studies, geological mapping, reconnaissance geochemical surveys and prospecting were also performed on permits and claim groups. Airborne electromagnetometer and magnetometer surveys were performed on those permits considered to have good basemetal potential.

Major programs of uranium exploration were undertaken by various companies in the central District of Keewatin. Aquitaine Company of Canada Limited undertook airborne radiometric and ground follow-up surveys on 12 prospecting permits and staked a uranium showing at Amer Lake. The Dynamic Group of Companies reported that sub-ore grade uranium concentrations were intersected in diamond drill holes on showings in the

Christopher Island area east of Baker Lake. They also staked airborne anomalies in the Kazan Falls region to the southwest. Major programs were also undertaken by Canadian Gridoil Limited, Abidonne Oils Limited, Republic Resources Limited, Canadian Export Gas and Oil Limited and Canadian Homestead Oils Limited, Central Del Rio Oils Limited, and Canadian Delhi Oils Limited.

In the southern District of Keewatin and southeastern District of Mackenzie, exploration for uranium was undertaken on permits held by Canadian Homestead Oils Limited, Fargo Oils Limited and Eldorado Nuclear Limited, and on claims held by Denison Mines Limited, Enx Mines Limited, Iso Mines Limited and Atlantic Richfield Canada Limited in the Padlei area.

Exploration for base metals in the southern District of Keewatin was undertaken by consortiums of companies. Extensive geochemical surveys in the Nueltin Lake area by the Nueltin Project Group discovered interesting copper-lead anomalies. The Rankin Nickel Syndicate staked large blocks of claims in the Rankin Inlet area in late 1969. An extensive geological reconnaissance program in the eastern part of the Rankin Inlet - Ennadai Lake greenstone belt by Penarroya Canada Limited resulted in the discovery and staking of promising stratiform mineral showings in acid flows and pyroclastics.

Borealis Exploration Limited continued its study of iron deposits and gossan investigations in the western part of the Melville Peninsula. These surveys outlined 4,492 million long tons of iron ore containing an average 35 per cent soluble iron.

The Amadjuak Syndicate studied the uranium possibilities in the southern part of Baffin Island; while the Patino Mining Corporation explored iron deposits at Ege Bay, and King Resources Limited and Texas Gulf Sulphur Company worked the northern part of the island. At Ege Bay, iron deposits totalling 363 million long tons were outlined by the Patino Mining Corporation. Texas Gulf Sulphur Corporation drove a 1,000-foot adit to bulk-sample its lead-zinc deposit at Strathcona Sound. Extensive geological, geophysical and geochemical studies of the graben extending southeast from Admiralty Inlet to Milne Inlet by King Resources encountered interesting concentrations of minerals.

Exploration in the eastern Northwest Territories continued at a high level in 1970. Fifty-four new prospecting permits were explored, and follow-up studies resumed in the permits granted in 1969.

The Dynamic Group of Companies added six prospecting permits to their holdings and performed radiometric, geological and geochemical surveys in the Baker Lake - Kazan Falls areas. Showings discovered in 1969 were explored in detail and drilled.

Aquitaine Company of Canada did follow-up surveys on mineral showings in the central district of Keewatin and probed the Amer Lake uranium showing with 26,802 feet of diamond drilling. Twenty-three prospecting permits covering the southern part of Melville Peninsula were subjected to airborne radiometric, electromagnetic and magnetic surveys and some ground work was done on the anomalies detected.

In the southern District of Keewatin, ground geological and geophysical surveys and diamond drilling were performed over uranium showings on the Enex Mines Limited and Denison Mines Limited claim blocks in the Padlei area. Pen-arroya Canada Limited acquired four prospecting permits and performed limited airborne and ground geophysical surveys, geological mapping and diamond drilling on base-metal showings in the greenstone belt. A similar program was carried out by the Rankin Nickel Syndicate near Rankin Inlet but no diamond drilling was undertaken. The members of the Nueltin Project performed geochemical and geophysical surveys and diamond drilling on their holdings in the Nueltin Lake area.

A geochemical survey was done by a consortium of companies on six prospecting permits on Somerset Island. Similar work by Bayou Petroleums Limited covered prospecting permits on Cornwallis and Bathurst islands. Cominco Limited also explored claim groups on Cornwallis and Little Cornwallis islands.

On Baffin Island, King Resources Limited performed detailed surveys including diamond drilling on showings discovered in 1969 and completed a major geological study of the northern part of the island.

EASTERN DISTRICT OF MACKENZIE

PROSPECTING PERMITS 138, 139 & 140
Canadian Homestead Oils Limited
630 - 6th Avenue Southwest,
Calgary, Alberta.

65 D/3,4,7
(60°15'N, 103°15'W)

Reference:

Taylor (1963)

Property:

Prospecting permit 138	65 D/3
Prospecting permit 139	65 D/4
Prospecting permit 140	65 D/7

Location:

Prospecting permits 138 and 139 cover an area, north of the Northwest Territories-Saskatchewan border, which extends from Striding Lake in the southwest to the north-eastern part of Atzinging Lake. Prospecting permit 140, to the northeast, extends east from Obre Lake to Kasba Lake, between Barr Lake to the north and Bourassa Lake to the south.

History:

The three permits were acquired by Canadian Homestead Oils Limited in early 1969.

Description:

Parts of two, slightly arcuate, northeast- to north-trending belts of sediments and volcanics within granitic and metamorphic units are included in the permit areas. The major belt, to the south and east of Atzinging Lake, consists chiefly of greywacke with some quartzite and minor iron-formation (unit 1, Taylor, 1963) to the west, and basalt and tuff (unit 2, op. cit.) to the east, and intercalated sedimentary and volcanic rocks (unit 3, op. cit.) to the north. A second belt of sediments outcrops in the north-central part of the western permit.

The northwestern three quarters of prospecting permit 139 and the northwestern corner of prospecting permit 138 are underlain by a four- to six-mile wide zone of gneissic granite and granodiorite, partly granitized sedimentary rocks

and minor pegmatite (unit 5, op. cit.) to the east and paragneiss, chiefly quartz-rich gneiss with various amounts of biotite, hornblende, feldspar, garnet and pyroxene (unit 4, op. cit.) to the north and west. The paragneiss, derived mainly from the sedimentary unit, encloses narrow elongate bodies of amphibolite hornblendite (unit A, op. cit.), and gabbro, quartz gabbro, pyroxenite and anorthosite (unit B, op. cit.).

The eastern border of prospecting permit 140 and the area east of the main volcano-sedimentary belt is underlain by granite, granodiorite and allied rocks (unit 6, op. cit.). A body of similar composition and 20 square miles in area intrudes the sediments south of Atzinging Lake.

The southwestern permit areas are cut by two major northeastern-trending faults which form the contact between the sediments and interlayered sediments and volcanics and the gneissic granite, granodiorite and paragneiss. A third fault trends northwest and forms the southern contact of the main belt volcanic member with the sedimentary rock units.

Current Work and Results:

The 1969 exploration program performed by Canadian Aero Mineral Surveys Limited over the permit areas consisted of a combined airborne electromagnetic, magnetic and gamma-ray spectrometer survey.

The radiometric survey outlined a number of uranium anomalies, with readings $1\frac{1}{2}$ times background, and two thorium-rich zones. The uranium zones are within the area of prospecting permit 140 which is underlain by granitic rocks. The thorium anomalies coincide with strong magnetometer readings in the northeast corner and southern half of the permit area.

The electromagnetometer survey outlined a total of 67 conductive zones, most of which occur in the southern two permits. Three of the anomalous zones coincide with strong magnetic anomalies and are probably related to bands of iron-formation within the sediments. Twenty-one anomalies occur along the southwest-trending volcanic-sediment contact in the central part of prospecting permit 138 and an arcuate group of five conductive zones was detected in paragneiss in the northeastern corner of prospecting permit 139.

Twenty-five of the remaining zones lack magnetic correlation and, in most cases, contain only weak intercepts while 14 zones have slight coincident magnetic response.

These were outlined along the eastern and western borders of prospecting permit 139 within volcanics, sediments and paragneiss.

PROSPECTING PERMITS 141, 142 & 143

Fargo Oils Limited

65 D/6,10,15

now Canadian Reserve Oil and

(60°37'N, 102°50'W)

Gas Limited,

639 - 5th Avenue Southwest,

Calgary, Alberta.

Reference:

Taylor (1963)

Property:

Prospecting permit 141

65 D/6

Prospecting permit 142

65 D/10

Prospecting permit 143

65 D/15

Location:

The southernmost permit covers the area west of Obre Lake, northwest of Atzinging Lake and southwest of Snowbird Lake. Prospecting permits 142 and 143 extend along the east shore of Snowbird Lake north from Barr Lake to five miles north of Kakoot Lake.

History:

Fargo Oils Limited acquired the three permits in early 1969 and relinquished prospecting permits 142 and 143 in 1970.

Description:

Within the permit areas, gneissic granite and granodiorite (unit 5, Taylor, 1963) enclose a number of northeast-trending volcano-sedimentary belts. The main belt extends along the west shore of Latimer Lake from south and west of Obre Lake to northeast of Snowbird Lake. To the southeast and in its north-central part, the belt consists of sedimentary rocks: chiefly greywacke with some quartzite and minor iron-formation (unit 1, op. cit.). From west of Obre Lake to west of Latimer Lake, the belt consists of intercalated volcanic and sedimentary rocks (unit 3, op. cit.). To the southwest these rocks have been metamorphosed into paragneiss: chiefly quartz-rich gneisses with various amounts of biotite, hornblende,

feldspar, garnet and pyroxene (unit 4, op. cit.). Sedimentary rocks also outcrop in two narrow arcuate belts in the southwest corner of prospecting permit 131 and in a narrow northeast-trending belt northwest of Snowbird Lake.

Elongate bodies of gabbro, quartz-gabbro, pyroxenite and anorthosite (unit B, op. cit.) intrude the volcano-sedimentary belt south and east of Snowbird Lake. Amphibolite (unit A, op. cit.) outcrops in the northwestern corner of prospecting permit 143 within an east-trending belt of meta-sediments and paragneiss and west of a granitic (unit 6, op. cit.) intrusion.

An arcuate fault trends northeast then north along the western edge of the main volcano-sedimentary belt west of Obre Lake, then along the east shore of Snowbird Lake and further north into the gneissic granite and granodiorite. Shorter faults and shear zones disrupt the main volcano-sedimentary belt north of Latimer Lake and east of Snowbird Lake.

Current Work and Results:

In 1969 a photogeological study and airborne spectrometer, electromagnetic and magnetic surveys of the permit areas were performed. A five-day follow-up survey investigated 12 radiometric and 11 electromagnetic anomalies. Most of the anomalous spectrometer readings coincide with boulder fields. The cause of the electromagnetic anomalies was not ascertained because outcrop was lacking.

In 1970 Geotrex Limited performed vertical- and horizontal-loop electromagnetic and magnetic ground surveys over 11 airborne electromagnetic anomalies within the area of prospecting permit 141. A zone of excellent conductivity with direct magnetic correlation was outlined on a north-trending peninsula west of the mouth of Dehox Bay. The anomaly occurs in gneissic granite and granodiorite containing inclusions of sedimentary and volcanic rocks and paragneiss. A good conductor without magnetic correlation was detected in the intercalated sediments and volcanics south of the tip of Dehox Bay. Two more conductors without magnetic correlation occur in gneissic granite and granodiorite to the west. Five fair to excellent conductors were outlined in paragneiss along the western border of the permit area. The final group of conductive zones investigated is located in a gneissic granite and granodiorite six to eight miles west of Dehox Bay near the northern border of the permit area. Three fair to good conductors without magnetic correlation were outlined.

PROSPECTING PERMITS 153 & 154

Canex Aerial Exploration Limited
now Canex Placer Limited,
700 - 1030 West Georgia Street,
Vancouver, B.C.

65 E/15, L/2
(62°00'N, 102°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 153	65 E/15
Prospecting permit 154	65 L/2

Location:

The area covered by the prospecting permits extends south for 36 miles from the north shore of Carey Lake and along the east shore of Barlow Lake.

History:

Canex Aerial Exploration Limited acquired prospecting permits 153 and 154 in early 1969.

Description:

The heavily drift-covered permit areas are underlain by granite, granodiorite and gneissic rocks (unit 13, Wright, 1967). Mapping of float indicated the presence, within the permit area, of biotite, feldspar, augen, amphibolite and granite gneisses as well as granodioritic, granitic, pegmatitic, lamprophyric, gabbroic and diabasic bodies of various sizes and shapes.

Current Work and Results:

In 1969 geological mapping at a scale of one inch to 5000 feet and one inch to 1000 feet was performed over 620 square miles and 80 square miles. Eighty line-miles of scintillometer surveys, 50 line-miles of magnetometer surveys and 1300 line-miles of airborne magnetometer and scintillometer were also performed. The geological surveys did not outline economic concentrations of sulphide minerals, but the radioactivity surveys delineated thorium-rich pegmatites. A sample from a boulder of dark red medium-grained rock in glacial till assayed .5 per cent uranium oxide and .1 per cent thorium oxide.

PROSPECTING PERMIT 149
Gage Canadian Oil and Gas
Corporation Limited,
1060 Guinness House,
Calgary 2, Alberta.

65 L/5
(62°17'N, 103°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 149

65 L/5

Location:

The prospecting permit area extends west and southeast of Mary Lake and north of Sid Lake.

History:

Gage Canadian Oil and Gas Corporation Limited acquired the prospecting permit in early 1969.

Description:

To the southeast, the heavily drift-covered part of the permit area is underlain by granite, granodiorite and allied rocks (unit 13, Wright, 1967). A few outcrops of sandstone and pebbly sandstone (unit 19, op. cit.) were mapped in the northwestern part of the permit area.

Current Work and Results:

In late 1969 and early 1970 a photogeological study of the area was performed by Geophoto Limited. The 1970 exploration program involved ground reconnaissance geological and scintillometer surveys, radon soil and stream-water analyses and a limited hydrochemical program to study the radon content of lake water. No anomalous concentrations of radioactive material were detected.

NICHOLSON LAKE SPECIAL PROJECT
Canadian Delhi Oil Limited (33 1/3%) Copper
now CanDel Oil Limited, 65 L/10
28th Floor, 330-5th Avenue Southwest (62°42'30"N, 102°36'40"W)
Calgary, Alberta.

Trans-Canada Resources Limited (33 1/3%)
1980 - 1055 West Hastings Street,
Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)
680, 444 - 7th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

4 KLAUS claims 65 L/10

Location:

The four claims are on the north shore of Nicholson Lake to the west of the head of the Dubawnt River.

History:

The KLAUS claims were staked for Canadian Delhi Oil Limited in September 1969 on completion of the exploration program described below.

Description:

The Nicholson Lake Special Project studies covered the eastern and western shores of Nicholson Lake that are underlain by granite, granodiorite and allied rocks, in large part gneissic and impure with many bands of partly assimilated schist, gneiss and amphibolite (unit 13, Wright, 1967).

Current Work and Results:

An airborne gamma-ray spectrometer survey flown by Questor Surveys Limited in August 1969 did not delineate any significant uranium anomalies. Ten weak anomalous zones of 2.5 times background radioactivity or less were investigated by reconnaissance ground scintillometer surveys and prospecting. No occurrences of radioactive minerals were detected during the ground follow-up work.

In the vicinity of one of the radioactive anomalies, a shear zone (62°42'30"N, 102°36'40"W) containing up to ten per cent sulphides, pyrite and trace chalcopyrite, was located and staked as the KLAUS claims. The mineralized outcrop is about ten feet long by five feet wide and associated gossan zone extends, in overburden along strike for 100 feet.

PROSPECTING PERMIT 127

Canadian Delhi Oil Limited (33 1/3%) 65 L/11
now CanDel Oil Limited, (62°37'N, 103°15'W)
28th Floor, 330 - 5th Avenue Southwest,
Calgary, Alberta.

Trans-Canada Resources Limited (33 1/3%)
1980 - 1055 West Hastings Street,
Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)
680, 444 - 7th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 127 65 L/11

Location:

The prospecting permit is for the northern and eastern shores of Mosquito Lake.

History:

Prospecting permit 127, acquired by Canadian Delhi Oil Limited in 1969, was relinquished in early 1970.

Description:

Mosquito Lake covers the contact between the granitic basement rocks outcropping along the east shore and northeast of the lake and the overlying Dubawnt Group sedimentary rocks. Granite, granodiorite and allied rocks (unit 13, Wright, 1967), in large parts gneissic and impure, outcrop in the southern parts of the permit area. Northeast of the lake the basement complex consists of massive granitic rocks (unit 14, op. cit.) with few inclusions. The heavily drift-covered northwestern corner of the permit area is underlain by sandstone and pebbly

sandstone, grit, arkose, siltstone and minor breccia (unit 19, op. cit.) of the Dubawnt Group.

Current Work and Results:

In August 1969 Questor Surveys Limited performed an airborne gamma-ray spectrometer survey in the permit area. The geophysical survey outlined five zones of anomalous radio-activity in the northeastern part of the permit area. Parts of four of these zones were checked by reconnaissance ground follow-up scintillometer surveys and prospecting. The ground survey did not locate significant uranium mineralization; most of the anomalous readings correspond to outcrops and boulder fields of sheared and brecciated granite with slightly hematized feldspars.

PROSPECTING PERMITS 155 and 156
Kary Explorations Limited,
300 - 310 9th Avenue Southwest,
Calgary 2, Alberta.

65 L/12,14
(62°45'N, 103°30'W)

Reference:

Wright (1967)

Property:

Prospecting permit 155
Prospecting permit 156

65 L/12
65 L/14

Location:

The permit areas are to the west and north of Mosquito Lake.

History:

Prospecting permits 155 and 156 were acquired by Kary Explorations Limited in early 1969.

Description:

Most of the area is heavily drift-covered and probably underlain by Dubawnt sandstone, grit and pebbly sandstone (unit 19, Wright, 1967) which outcrop in the eastern part of the northern permit area in contact with granite, granodiorite and related rocks (unit 13, op. cit.) of the basement complex.

Current Work and Results:

Campbell Geological Consultants (1969) Ltd. conducted a geological-geochemical reconnaissance examination of the two permit areas in 1970. Geological mapping, based on a 1969 photogeological study, and scintillometer prospecting, was followed by a survey of the uranium content of stream and lake waters. The radon content of soils and water was determined for a limited number of samples.

The hydrochemical data indicate a moderately anomalous northeasterly trend crosses the two permit areas parallel to the Dubawnt Group basement complex contact. This anomalous trend was not detected during the ground scintillometer traverses and the determination of the radon gas content of soil and water.

PROSPECTING PERMIT 151

Wainoco Oil & Chemical Limited
312 - 4th Avenue Southwest
Calgary, Alberta.

65 L/15
(62°52'N, 102°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 151

65 L/15

Location:

The area covered by prospecting permit 151 extends south from the centre of a large lake 25 miles west of Dubawnt Lake to the north shore of Nicholson Lake.

History:

Prospecting permit 151 was acquired by Wainoco Oil and Chemical Limited in early 1969.

Description:

The permit area covers the southwesterly-trending contact between the Dubawnt Group, a flat-lying assemblage of unmetamorphosed sedimentary and volcanic rocks, and the granitic basement complex. Sandstone, grit, and pebbly sandstone

(unit 19, Wright, 1967) of the Dubawnt Group underlie the northwestern quarter of the permit area, the remainder of which is underlain by granite, granodiorite and related gneisses (unit 13, op. cit.) of the basement complex.

Current Work and Results:

In 1970 a 673-line-mile spectrometer survey flown over the permit area outlined six weak anomalies, four in the central region within the basement complex and two on the west shore of a larger lake at the Dubawnt Group basement complex contact.

PROSPECTING PERMIT 128

Canadian Delhi Oil Limited (33 1/3%)

65 M/2

now CanDel Oil Limited

(63°07'N, 102°45'W)

28th Floor, 330-5th Avenue Southwest

Trans-Canada Resources Limited (33 1/3%)

1980 - 1055 West Hastings Street,

Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)

680, 444 - 7th Avenue Southwest,

Calgary, Alberta.

References:

Wright (1967); Donaldson (1969)

Property:

Prospecting permit 128

65 M/2

Location:

The permit area extends from the central part of a large lake 24 miles west of the shore of Dubawnt Lake to the southern boundary of the Thelon Game Sanctuary.

History:

Prospecting permit 128, acquired by Canadian Delhi Oil Limited in 1969, was relinquished in 1970.

Description:

The permit area covers a north-trending contact between granite, granodiorite and undifferentiated granitoid

gneiss (unit 1, Donaldson, 1969) to the east and the sedimentary units of the Thelon Formation, a member of the Dubawnt Group. Basal conglomerate (unit 6a, op, cit.) of the Thelon Formation outcrops as a lens-shaped body at the contact of the sediments with the basement complex south of the boundary of the Thelon Game Sanctuary. The western part of the permit area is underlain by sandstone with minor siltstone and mudstone (unit 6c, op. cit.).

Current Work and Results:

An airborne gamma-ray spectrometer survey flown over the permit area in 1969 outlined a number of radioactive anomalies, ten of which were investigated by reconnaissance ground scintillometer surveys and prospecting. The ten anomalies investigated occur in granitic gneisses in the northeast corner of the permit area. No uranium minerals were detected but disseminated pyrite was noted in a sample from a slightly radioactive shear zone in biotite gneiss.

SOUTHERN DISTRICT OF KEEWATIN

MISSION KEEWATIN
Penarroya Canada Limitée
10 King Street East,
Toronto, Ontario.

Copper, Zinc, Silver, Nickel
55 E/13, K/3, L/3,7; 65 H/16

References:

Wright (1967); Davidson (1970 a, b); Bell (1971)

Property:

Prospecting permit 205	55 L/3	
Prospecting permit 206	55 L/7	
Prospecting permit 207	65 H/16	
233 BEL claims	55 E/13	65 H/16
67 BETA, 123 CRI, 21 DELTA, 7 EPSILON, 3 ETA, 15 GAMMA, 28 LAMBDA, 3 MU, 24 POL, 27 T and 8 THETA claims	55 K/3	
5 KL and 160 LAD claims	55 L/7	

Location:

The main group of 326 claims was staked within an area (62°10'N, 93°15'W) centred ten miles northwest of the abandoned settlement of Tavani and bounded to the south by Fishery Lake, to the east by Mistake Bay and to the west by the Ferguson River. Prospecting permits 205 and 206 (62°15'N, 95°00'W) cover the western, southern and northeastern shores of Kaminak Lake and enclose the KL and LAD claims. Prospecting permit 207 (61°52'N, 96°56'W) and the BEL claims cover the area between the Turquetil and Yandle Lakes.

History:

The BEL, CRI, T, KL and LAD claims were staked for Penarroya Canada Limitée in August and September 1969 to cover outcrops of felsic volcanics outlined during a geological survey in 1969. Prospecting permits 205 to 207 were acquired in April 1970, and the remaining claim groups staked later that summer to cover interesting anomalies detected during exploration.

Description:

The claim groups of the Tavani area are underlain by intermediate-to-basic volcanic rocks and derived amphibole

schist and gneiss (unit 7, Wright 1967) in contact to the south with gneissic and impure granite, granodiorite and allied rocks (unit 13, op. cit.) and a small intrusive diorite and gabbro body (unit A, op. cit.). To the northwest the greenstones are overlain by a northeast-trending band of Hurwitz Group quartzite (unit 9, op. cit.). During the 1969 and 1970 detailed mapping programs the greenstone sequence was subdivided into basic lavas and basalts with basic tuffs and iron-rich chert bands, and acid-to-intermediate lavas with fine-grained rhyolitic tuffs and graphitic schists. To the northeast the rocks mapped by Wright as undivided Hurwitz Group metasediments (unit 11, op. cit.) were found to consist of basic pyroclastic tuffs with cherty bands and minor conglomerate.

Within the two Kaminak Lake permit areas the Kaminak Group (Davidson, 1970a) volcanic series outcrops in an east-northeast-trending belt one half to eight miles wide in contact to the southeast with an intrusive complex and to the northwest with sedimentary and volcanic rocks of the Hurwitz Group. A second intrusive complex consisting of massive grey hornblende tonalite (unit 2, op. cit.) with minor hornblende gabbro and diorite (unit 1, op. cit.) underlies the area northwest of the Hurwitz Group sequence. The central intrusive complex underlying most of the lake also consists mainly of tonalite and includes hornblende gabbro or diorite with abundant inclusions of amphibolite (unit 1a, op. cit.), foliated or gneissic tonalite (unit 2b, op. cit.) and massive homogeneous porphyritic biotite adamellite (unit 3, op. cit.). This complex is in contact to the southeast with an overturned syncline of Kaminak Group metavolcanics and sediments. Nearly all units of the Kaminak Group are represented within the two permit areas: massive pillowed basaltic and andesitic greenstones with intercalated mafic pyroclastic rocks and including associated mafic intrusions (unit Am, op. cit.), hornblende schist and amphibolite (unit Am', op. cit.), layered amphibolite and hornblende gneiss (unit Amn, op. cit.), mafic flows with some intercalated felsic flows and tuffs (unit Av, op. cit.), intercalated amphibolitic and quartzofeldspathic schists (unit Av', op. cit.), layered mafic schist and gneiss with some layers of quartzofeldspathic gneiss (unit Avn, op. cit.), felsic tuff, agglomerate and flow breccia including quartz and quartz-feldspar porphyritic intrusions (unit Af, op. cit.) and the sedimentary member of the group: greywacke, slate, minor tuff and volcanic pebble conglomerate (unit As, op. cit.). The felsic unit outcrops along an arcuate band in the southeastern corner of prospecting permit 205 and over a large area between Kaminak Lake and Quartzite Lake.

The Hurwitz Group units outcrop within a 1.5- to 3-mile wide fault-bounded trough, which trends northeast across the northwest corner of prospecting permit 205 and the central part of prospecting permit 206, and include polymictic conglomerate, greywacke, siltstone and impure quartzite (unit Aha, op. cit.), thin-bedded, commonly ripple-marked orthoquartzite (unit Ahb, op. cit.), slate, siltstone and greywacke with minor dolomite (unit Ahc, op. cit.) and massive and pillowed andesitic greenstone in part intercalated with the underlying slaty unit (unit Ahd, op. cit.). A number of porphyritic diabase, metadiabase and amphibolite dykes (unit Adb, op. cit.) trend north-northeast to north, intruding all rocks but the Hurwitz Group units. Numerous east-northeast and northwest-trending faults disrupt the various rock units within the two permit areas.

The area of prospecting permit 207, west of Turquetil Lake, is underlain by the same rock sequence as the Kaminak Lake area except for the Hurwitz Group units. Two three- to four-mile wide intrusive bodies composed of massive hornblende tonalite (unit 2, Bell, 1971), and hornblende diorite or leucogabbro (unit 1, op. cit.) trend northeast from the southeastern shore of Heninga Lake and the northeastern shore of Yandle Lake. A one-mile wide tongue of the southern intrusive body also trends east in the east-central part of the permit area. A two-mile wide zone of felsic tuff, agglomerate and flow breccia (unit Af, op. cit.) trends east across the central part of Heninga Lake then north-northeast across the Maguse River. To the northwest and east, the felsic unit is in contact with massive or pillowed basaltic andesitic greenstones and mafic intrusions (unit Am, op. cit.). The remainder of the permit area is underlain by pillowed volcanics and agglomerates including both mafic and felsic flows (unit Av, op. cit.) and in the southwest corner of the permit area, sediments (unit Avs, op. cit.).

Current Work and Results:

Project Keewatin started during the summer of 1969 as a reconnaissance geological survey employing two geologists and one prospector. It covered a 9700-square mile area extending from Padlei to the coast of Hudson Bay and from the Maguse River to Happtiyik Lake. Three major claim groups were staked over felsic pyroclastics and flows containing stratiform mineral occurrences.

In 1970 the claims and newly-obtained prospecting permits were mapped geologically at a scale of one inch to the mile. A 2125.2 line-mile electromagnetic and magnetic

survey outlined 33 anomalous zones in the Tavani area, 11 zones in the Turquetil Lake area and 11 zones in the Kaminak Lake area. Thirty-eight line-miles of Turam electromagnetic surveys, 17 line-miles of Scintrex SE 300 electromagnetic surveys, five line-miles of magnetometer surveys and 4349 feet of diamond drilling were completed during the summer. The Turam surveys covered seven mineral showings located in 1969 and one of the airborne anomalies, while SE 300 surveys probed 16 of the airborne anomalies.

In the Tavani area 13 diamond drill holes, totalling 3019 feet, tested two surface showings and six airborne and ground geophysical anomalies. Two holes failed to penetrate the glacial drift, one hole did not intersect the conductor and four holes cut various thicknesses of graphitic schists. Sulphide concentrations were intersected in five holes. The sixth hole, drilled to probe a geophysical anomaly (62°10'N, 93°19'W) on the GAMMA claims, intersected 6.75 feet of graphitic schist and 63 feet down hole, 10 feet of rhyolitic schist with disseminated pyrrhotite, chalcopyrite and sphalerite.

Two holes were drilled on the POL claims to test a geophysical anomaly (62°08'45"N, 93°19'W) adjacent to rusty rhyolite outcrops, samples of which assayed .28 per cent copper, .03 per cent zinc, and .01 per cent nickel. The holes, 396 and 321 feet long, intersected a 240-foot thick section of interbedded rhyolite and rhyo-dacite mineralized with chalcopyrite.

A third anomaly, (62°07'45"N, 93°11'30"W) on the CRI claims, coincides with a mineralized rusty-weathering rhyolite breccia, a channel sample of which contained copper, zinc, and silver. Two holes, 268 feet and 392 feet long, tested the mineralized zone at depths of 150 feet and 300 feet. A third hole drilled 600 feet to the east did not cut breccia. At a depth of 300 feet the rhyolite breccia has a true thickness of about 30 feet.

Three other anomalies, two in the Kaminak Lake area and one in the Turquetil Lake area were drilled. No conductors were identified in core from an anomaly on a small peninsula in the northwestern corner of the IAD claim group. In the northwestern corner of prospecting permit 205, the drill hole intersected 30 feet of graphitic schist, the lower 12 feet of which contained copper, zinc and silver. The only anomaly probed in the Turquetil Lake area coincides with a 25-foot thick band of graphitic schist.

RANKIN INLET PROJECT
Rankin Nickel Syndicate
comprising:

Nickel, Copper, Gold
55 J/13,14; 55 K/16
(62°50'N, 92°00'W)

- a) Ensign Oils Limited (33.4%)
now Houston Oils Limited,
950, 355-4th Avenue Southwest,
Calgary, Alberta.
- b) More Mines Limited (18.6%)
- c) Nahanni Mines Limited (18.6%)
- d) Fort Reliance Minerals Limited (14.7%)
- e) Redstone Mines Limited (14.7%)
all at 915, 25 Adelaide Street East,
Toronto, Ontario.

References:

Bannantyne (1958), Wright (1967), Bell (1968)

Property:

30 G, 49 GIN, 25 JAH, 18 L, 11 MR, 16 NEG, 31 OP, 32 RUM, 20 YES, and 28 Z claims	55 J/13
8 MAB claims	55 J/13, K/16
12 T claims	55 J/14
102 CC, 10 E, 10 HAJ, 6 INK, 30 M, 14 P, 17 PEN, 16 PIG, 77 RR, 28 VO, and 13 W claims	55 K/16

Location:

The Rankin Nickel Syndicate main holdings, consisting of the CC, HAJ, M, RR, RYE and VO claims, cover the Kudlulik Peninsula from the centre of Buff Island northwest to the north shore of the Char River. Two smaller groups, the W and P claims, cover the mainland north-northeast of, and the peninsula north of the Barrier Islands. The PEN and INK groups were staked two miles northwest and three miles north-northwest of the widest part of the Meliadine River. A sixth group of claims, the E and PIG claims, extends inland from the shore of the mainland northeast of Thompson Island. Seven miles of shore northeast of Thompson Passage and Falstaff Island were staked as the JAH, MR, OP and Z claims. The second largest block of claims, comprised of the G, GIN, NEG and RUM claims, extends along the northeast shore of a large lake southeast of Meliadine Lake. The YES claims lie one to two miles north of this group while the L and MAB claims cover the area three to six miles to the northwest. The T claims cover the southern part of a north-trending

peninsula north of Rabbit Island and northeast of the mouth of Rankin Inlet.

History:

On the basis of a turn-of-the-century Geological Survey of Canada report, the Cyril Knight Prospecting Company Limited sent a crew of prospectors into the Rankin Inlet area in 1928. In 1929 six holes put down on a showing discovered the previous year outlined 120,000 tons of ore grading 4.62 per cent nickel, 1.22 per cent copper and .11 ounces of platinum per ton. Further diamond drilling was done by the Nipissing Mining Company in 1936 and 1939 and the property then remained idle until 1951 when it was acquired by Rankin Inlet Nickel Mines Limited and subjected to magnetic and electromagnetic surveys. In 1953 a 331-foot shaft was sunk and 2600 feet of crosscutting and drifting completed. Reorganized as the North Rankin Nickel Mines Limited in 1954, the company began site development in 1955, and constructed a 250 ton-per-day concentrating plant and ancillary buildings. When the first ore was treated on May 23, 1957 ore reserves consisted of 447,500 tons grading 3.20 per cent nickel and .93 per cent copper plus an indicated 64,500 tons containing 3.21 per cent nickel and 1.25 per cent copper. The mine closed at the end of the 1962 shipping season after 21.3 million pounds of nickel and 5.8 million pounds of copper had been produced from 405,753 tons of ore mined. The nickel-copper ore consisted of disseminated-to-massive pyrrhotite, pentlandite, chalcopyrite, magnetite and minor pyrite within depressions on the bottom of a serpentinized ultrabasic sill intruded along a sediment-volcanic contact.

Following preliminary geological field investigations by the Rankin Nickel Syndicate 531 claims were recorded in October and December of 1969. Airborne and ground geophysical and geological work during the summer of 1970 resulted in the recording of another 118 claims in September. On completion of the 1970 ground programs, 247 claims were allowed to lapse.

Description:

A westerly-trending fold complex in intermediate-to-basic volcanic rocks and derived amphibolite schist and gneiss (unit 7, Wright, 1967) bounded to the north and west by granite, granodiorite and allied rocks, in large part gneissic (unit 13, op. cit.) underlies the Rankin Inlet area. The greenstone assemblage grades to the northwest into gneiss, schist, amphibolite and granulite (unit 12, op. cit.). Gneissic granite outcrops in the volcanic belt along the

axial plane of folds. Quartzite with impure quartzite and gritty sandstone (unit 9, op. cit.), greywacke with impure quartzite, slate, phyllite and conglomerate (unit 10, op. cit.) and other undifferentiated sedimentary rocks (unit 11, op. cit.) of the Hurwitz Group outcrop locally in the greenstones.

Detailed geological mapping by Bannantyne in 1958 indicates the following stratigraphic sequence: a lower volcanic unit comprising andesite to basalt flows with some dacitic flows and interbedded thin bands of tuff and dolomite followed by a sedimentary unit with basal dolomite and siliceous dolomite beds overlain by the pure-to-impure Marble Island quartzite of Bell (1968, pp. 5 and 6), tuffs and tuffaceous sediments, and an upper volcanic unit consisting of andesite and dacite flows enclosing a thin band of agglomerate. The lower volcanic unit outcrops extensively along the north shore of Rankin Inlet west of Melvin Bay and northwest of Prairie Bay. North of Melvin Bay the central part of the Kudlulik Peninsula is underlain by the sedimentary sequence which also outcrops southeast and northeast of a large lake southeast of Meliadine Lake. The upper volcanic unit outcrops south and east of the settlement of Rankin Inlet at the tip of the Kudlulik Peninsula, on Thompson and Falstaff islands and on the north shore of the inlet where it grades into hornblende gneiss and granitic biotite gneiss. Several basic to ultra-basic sills, one of which contained the North Rankin Nickel Mines Limited orebody, intrude the volcano-sedimentary assemblage along the north shore of Rankin Inlet west of Kudlulik Peninsula and the sedimentary sequence east of Meliadine Lake.

Current Work and Results:

Field geological investigations of the Rankin Inlet area by the Rankin Nickel Syndicate were initiated in 1969 subsequent to a thorough study of assessment work submitted by North Rankin Nickel Mines Limited. In 1970, 817 line-miles of low-level magnetic, electromagnetic and very low frequency electromagnetic surveys were flown. Ground geophysical and geological surveys, and a rock-chip geochemical survey program involving some trenching were performed in 61 areas of interest. The ground surveys outlined 11 areas with economic potential.

On the INK claims, north-northwest of Rankin Inlet, an electromagnetic anomaly was outlined in a covered area near the contact of volcanics with granitic gneiss. Boulders of thin-bedded magnetite iron-formation, impure quartzite and slightly sheared andesitic tuff, containing minor blebs and

lenses of pyrrhotite and lesser pyrite, occur within the anomalous areas. A hole drilled earlier by North Rankin Nickel Mines Limited 150 to 350 feet north of the iron-formation intersected graphite and marcasite. A second anomaly lies 12 miles northwest of the settlement in a covered area 700 feet northeast of the biotite granite volcanic contact. Scattered rusty boulders containing two to five per cent disseminated pyrite and pyrrhotite were observed in the vicinity. Six miles northwest of the settlement in a covered portion of the HAJ claims, two east-trending conductors with good magnetic expression lie parallel to a major structural break that may be an unconformity. Massive andesite outcropping to the north of the anomalous zone is barren.

Two parallel north-northeast-trending conductors were outlined by reconnaissance geophysics one to two miles southeast of the HAJ claims. The southernmost conductor coincides with a 1000 gamma magnetic anomaly. This covered area is bounded by coarse-grained andesite to the south, slaty tuff and andesite to the northwest and impure quartzite to the northeast. North Rankin Nickel Mines Limited detected .14 per cent copper and .11 per cent nickel in a grab sample from andesite in the western part of the area. Three miles west of the mouth of the Meliadine River, three conductors were outlined. North Rankin Nickel Mines Limited drilled the most easterly of the zones and intersected graphitic tuffs, andesite and quartz-carbonate rock which assayed up to .23 per cent nickel and traces of copper over 2.5 feet.

Within the YES group southeast of Meliadine Lake, two wide multiple conductors with varying magnetic correlation trend east-southeast at the contact between metamorphosed sediments and volcanics. West of the northwestern zone, a chlorite schist outcrop contains bands comprising three to five per cent magnetite. A grab sample from a five-foot wide silicified zone assayed .20 ounces of gold per ton.

Geological mapping of the PIG claims two to three miles east of the mouth of the Meliadine River outlined a wide metamorphosed mafic intrusion assaying .21 to .44 per cent copper and .18 to .40 per cent nickel. Pyrrhotite, chalcopyrite, and minor pentlandite, sphalerite, pyrite and ilmenite are present in the altered gabbro. Geophysical surveys outlined a number of poor conductors within the mineralized zone.

Three parallel very low-frequency electromagnetic conductors were outlined within pillowed and spherulitic

andesite flows one mile southeast of the old mine shaft. Farther west, ground geophysics delineated a complex multiple conductor trending north along the contact of massive andesite with sheared tuffs and quartzite.

In the eastern part of the M claim group, near the mouth of the Char River, ground geophysical surveys outlined a complex pattern of conductors within a sequence of coarse tuff grading upwards into shaley tuffs, andesite, dolomite and dolomite with minor quartzite interbeds. This sequence trends southwards to three miles northwest of the old mine shaft where several electromagnetic conductors were outlined in a covered area.

Two to three miles west of the old mine shaft three north-trending conductors were outlined. A hole drilled earlier by North Rankin Nickel Mines Limited intersected 16.5 feet of graphitic andesite containing .16 per cent nickel.

MORSO ISLAND CLAIMS	Copper, Gold, Nickel, Silver
Whale Cove Copper Mines Limited,	55 K/2
c/o Maroubra Holdings Limited,	(62°02'30"N, 92°40'W)
2003 - 1277 Robson Street,	
Vancouver, B.C.	

Reference:

Wright (1967)

Property:

18 MAR claims	55 K/2
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Location:

The claims extend southeast across the central part of the southernmost Morso Island, nine miles south-southwest of the settlement of Whale Cove.

History:

Morso Islands were prospected by Tavane Explorations Limited in 1961 but no ground was acquired. The MAR claims were staked by W. Gamblin in September 1969 and transferred to Whale Cove Copper Mines Limited in December 1970. Five Star Petroleum Mines Limited acquired the claims in February 1971.

Description:

Morso Islands consist of intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967) and minor zones of rhyolite, tuff and quartz mica schist. Two samples collected by Tavane Explorations Limited from a quartz vein assayed 4.88 and 1.03 per cent copper, 9.82 and 1.27 ounces of silver and .06 and .03 ounces of gold per ton.

Current Work and Results:

In 1969 a 6-inch-to-10-foot wide and 920-foot long massive quartz vein bearing 280° and dipping 75° north was trenched and sampled. One- to two-inch bands of massive pyrite with lesser quantities of pyrrhotite and chalcopyrite are enclosed in the vein and disseminated sulphides occur within the hornblende granite at the contacts. Samples from the vein assayed as follows:-

<u>Location</u>	<u>Gold</u> oz/ton	<u>Silver</u> oz/ton	<u>Copper</u> %	<u>Nickel</u> %
Pit #1	.02	.48	.88	.04
Pit #2	.75	.84	.89	.08
	.04	.78	1.91	.02
600' west of	Tr	.48	1.25	.03
pits	.20	.40	1.77	Tr

A second quartz vein, one to six inches wide, and 1110 feet long, strikes north, dips east and intersects the other quartz vein near the shore of Hudson Bay on claim MAR 17.

WHALE COVE CLAIMS
Maroubra Holdings Limited
2003 - 1277 Robson Street,
Vancouver, B.C.

Copper, Molybdenum, Gold, Silver
55 K/2
(62°27'30"N, 92°34'W)

Reference:

Wright (1967)

Property:

72 MAR claims

55 K/2

Location:

The claim group extends north from Whale Cove, along the peninsula, to east of the mouth of Wilson Bay.

History:

Tavane Explorations Limited prospected the Whale Cove peninsula in 1961 and trenched a number of showings. Two showings in the eastern and northwestern part of the area were staked as the JAN and CAT claims. A reconnaissance electromagnetometer survey, geological mapping and the diamond drilling of three holes totalling 571 feet was performed on the CAT group.

The MAR claims were staked by John Gorski for Maroubra Holdings Limited in September 1969. The northern, eastern and south-central parts of the claim group were allowed to lapse, the southern 18 claims were transferred to Sastrex Petro Minerals Limited in October 1970, and five claims near the centre of the group were transferred to Whale Cove Mines Limited.

Description:

The peninsula consists of intermediate to basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright 1967) intruded to the east and west by gneissic granitic rocks (unit 13, op. cit.).

A number of gossans in shear zones, tuff bands and along joints were trenched by Tavane Explorations Limited and found to contain pyrite, chalcopyrite, marcasite, pyrrhotite and minor malachite, azurite and bornite. One-inch wide massive molybdenite veinlets are associated with irregular aplite dykes. Samples from the gossan zones assayed 1.02 to 5.67 per cent copper. Molybdenite showings contained .22 to 3.45 per cent molybdenum sulphide and 1.37 per cent copper. A sample from the gold showing staked as the JAN claims contained 2.70 per cent copper, 5.17 ounces of gold and 2.46 ounces of silver per ton.

The CAT claims showing consists of an 8- by 40-foot occurrence of massive chalcopyrite. Samples from the occurrence assayed 6.78 to 24.38 per cent copper, but the three holes drilled to probe the occurrence failed to intersect mineralization on the downward projection of this showing.

Current Work and Results:

Three areas of interest were outlined during the geological evaluations performed in 1969 and 1970. Molybdenite and chalcopyrite occur in one-inch to two-inch wide quartz veins in the southeastern corner of the claim group. Samples taken from the area in 1969 assayed .068 to 5.45 per cent molybdenum and .58 to 1.17 per cent copper. The veins are spaced ten feet apart over areas of about 10,000 square feet. A larger quartz vein bearing chalcopyrite and minor molybdenite trends north across the central portion of the claim group. Samples from this vein assayed .44 to .83 per cent copper. The third area investigated, in the northwestern corner of the MAR group, corresponds to the CAT claims showing described above. Samples taken from the occurrence in 1969 assayed 4.50 to 6.70 per cent copper and .09 to .22 per cent nickel.

TAVANI - RANKIN INLET PROJECT
Husky Oil Limited,
815 - 6th Street Southwest,
Calgary, Alberta.

Copper, Gold, Lead, Silver
55 K/2,3,4,6,7,16

References:

Wright (1967); Bell (1968)

Property:

Prospecting permit 201	55 K/4
Prospecting permit 202	55 K/6
72 HUS claims	55 K/2
108 OIL claims	55 K/3
108 KEE claims	55 K/7
72 JET claims	55 K/16

Location:

The southwestern prospecting permit 201 (62°07'N, 93°45'W) covers an area extending north-northeast from a major widening of the Copperneedle River, downstream from Southern Lake, to Last Lake. Further to the northeast, the area of prospecting permit 202 (62°27'N, 93°15'W) lies between Maze Lake and the head of Wilson Bay. The OIL claims (62°04'30"N, 93°08'W) were staked between Fishery Lake to the west and the abandoned settlement of Tavani to the east. The south shore of Wilson Bay, nine miles northwest of Whale Cove, was staked

as the HUS claims (62°14'30"N, 92°48'W). The KEE lcaims (62°28'30"N, 92°47'W) lie three miles west of the northeast shore of Pistol Bay and the JET claims (62°54'N, 92°05'W) six miles north of the settlement of Rankin Inlet.

History:

The four claim groups were staked over sulphide occurrences by J. Antoshkiw and J. Gorski and transferred to Husky Oil Limited in early 1970. Prospecting permits 201 and 202 were acquired in April 1970.

Description:

All but one of the properties acquired by Husky Oil Limited cover parts of a greenstone belt extending north-east from the Mountain Lake area to the shore of Hudson Bay. The intermediate to basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright 1967) are enclosed and intruded by gneissic and impure granitic rocks (unit 13, op. cit.) and overlain by bands of white quartzite with some impure quartzite and gritty sandstone (unit 9, op. cit.) and other undifferentiated sediments (unit 11, op. cit.) of the Hurwitz Group. Diorite and gabbro (unit A, op. cit.) masses intrude the greenstones on the Husky Oil Limited properties.

The two prospecting permits are underlain by meta-volcanics in contact with the granitic basement complex in the northeast quarter of prospecting permit 202 and the southeast corner of prospecting permit 201. The Hurwitz Group metasediments outcrop in a number of narrow elongate belts; the main belt is 3.5 miles wide and trends northeast for 25 miles, straddling the Ferguson River. Shorter, narrow belts trend northeast and east from the north shore of the Wilson River and Whiterock Lake. Bell (1968) has subdivided the Hurwitz Group into eight units. Pink and white fine-grained orthoquartzite (unit HD) and multicoloured mudstones (unit HE) outcrop within the belts north of the Wilson River. To the southeast, the main belt consists of orthoquartzite, mudstones enclosing a gabbro sill (unit HFa) and quartzose, micaceous, feldspathic and lithic sandstone with minor mudstone and conglomerate (unit HG). Gabbroic intrusive bodies outcrop on the north shore of Maze Lake and northeast of Gill Lake within the northeastern permit area and in the northwestern corner of prospecting permit 201.

The OIL claims cover part of the granitic basement while the HUS claims are underlain by coarse-textured sandstones related to Bell's HG rock unit. West of Pistol Bay,

the KEE group covers the arcuate contact between greenstone and an enclosed gneissic granite body. The HET claims near Rankin Inlet are underlain by metavolcanics possibly related to the greenstones further south, but separated from them by a 10-mile wide zone of granitic basement material.

Current Work and Results:

During the summer of 1970 an airborne radiometric survey, totalling 2400 line-miles, and a combined airborne electromagnetometer-magnetometer survey, totalling 150 line-miles on prospecting permit 201, and 1174 line-miles on prospecting permit 202, were flown. Anomalies were investigated by ground geophysical and geological surveys, prospecting and trenching.

The electromagnetic survey results were not available during ground exploration of prospecting permit 201, so this program only covered areas where claims had been staked and work done in the past. After prospecting the length of a fault trending northeast across the northeast corner of the permit area, detailed electromagnetometer and magnetometer surveys were performed over an 800-foot wide by 5200-foot long grid (62°02'30"N, 93°38'W). Two of the five poor conductors outlined were trenched and found to be pyrite, pyrrhotite and chalcopyrite and magnetite in metavolcanics and sheared greywacke. Grab samples from the trenches assayed up to .55 per cent copper. Three quartz veins in metavolcanics within the lapsed GUN group (62°13'45"N, 93°53'W) were sampled and found to contain up to .45 ounces of silver per ton, .330 per cent copper and .102 per cent lead. The lapsed REP group (62°07'45"N, 92°50'W) was also examined. It covered well-trenched quartz veins from 20 to 500 feet long, one- to three-feet wide containing up to .50 ounces of gold and .55 ounces of silver per ton. Five good conductors, two with magnetic correlation were also outlined during the airborne electromagnetometer survey.

Six of the 15 anomalies outlined by the airborne electromagnetometer survey flown over prospecting permit 202 were selected for ground geophysical evaluation. Ground electromagnetometer anomalies were detected along a mudstone-volcanic contact that was later exposed by trenching. Three other airborne anomalies were prospected and are due to minor pyrite disseminations in volcanics. Two magnetic anomalies correspond to discontinuous low-grade iron-formation and gabbro while another two are caused by partly serpentinized barren gabbro. Ten of twelve weak airborne radioactive anomalies correspond to concentrations of granitic boulders,

high eskers and lake shores. A granodiorite body north of Whiterock Lake is cut by narrow quartz veins containing chalcopyrite, chalcocite, galena and molybdenite. Samples from these veins assayed 1.24 per cent lead with 5.20 ounces of silver per ton. Ground electromagnetometer and magnetometer surveys, prospecting and trenching were performed on the claim groups but no conductors were outlined. Traces of chalcopyrite and disseminated pyrite zones were found by prospecting.

PISTOL BAY CLAIMS
Whale Cove Copper Mines Limited
and Maroubra Holdings Limited,
2003 - 1277 Robson Street,
Vancouver, B.C.

Gold, Silver, Copper, Nickel
55 K/7
(62°29'N, 92°45'W)

Reference:

Wright (1967)

Property:

105 MAR claims

55 K/7

Location:

The MAR claims cover the northwestern shore of Pistol Bay 22 miles north of Whale Cove.

History:

North Rankin Nickel Mines held the Pistol Bay area under prospecting permit 18 in 1961 and early 1962. Geological mapping and prospecting by Tavane Explorations Limited in 1961 led to the staking of 25 claims in the area now covered by the MAR claims.

The MAR 1 to 36 and 73 to 105 claims were staked by W. Gamblin and J. Gorski in August 1969 and transferred to Whale Cove Copper Mines Limited. Claims MAR 36 to 72 were staked by J. Antoshkiw and transferred to Maroubra Holdings Limited at that time. Five Star Petroleum and Mines Limited acquired the claims held by Whale Cove Copper Mines Limited in February 1971.

Description:

A narrow northeast-trending band of intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright 1967) intruded to the east and west by gneissic granitic rocks (unit 13, op. cit.) underlie the MAR claims and the west shore of Pistol Bay. Numerous gossans composed of arsenopyrite with minor chalcopyrite and pyrrhotite were sampled by Tavane Explorations Limited. The samples assayed .05 to 1.16 ounces of gold per ton and one sample assayed 4.32 per cent copper.

Current Work and Results:

Geological evaluation, trenching and sampling of gossan zones was performed in 1969 and 1970. The main showing examined in 1970 consists of a narrow quartzite band underlain by volcanics and overlain by a pyroxenite sill. In the northwestern part of the claim group, on claim MAR 95 and 96, the northwest-trending quartzite is brecciated and massive pyrrhotite occurs over widths of one foot with smaller stringers and disseminations extending over a 30-foot width. Samples collected in 1969 assayed up to .40 ounces of gold and .58 ounces of silver per ton, 1.48 per cent copper, and .09 per cent nickel.

Three thousand feet to the southeast, on claim MAR 79, chalcopyrite occurs in a quartz lens 40 feet long and up to three feet wide. The quartz pod is at the contact of sheared and chloritized metavolcanics with an overlying ultrabasic sill. Samples from this lens assayed as much as .68 per cent copper and .12 per cent nickel.

Three other showings were trenched and sampled in 1969. Samples from two showings on claim MAR 15 assayed up to .48 ounces of gold and 1.80 ounces of silver, 3.84 per cent copper and 1.23 per cent nickel, and .31 ounces of gold and 1.07 ounces of silver per ton, 1.85 per cent copper and .09 per cent nickel. On claim 43 in the southeastern corner of the claim group, samples from quartz veins assayed up to 1.3 ounces of gold, and 1.60 ounces of silver per ton, .68 per cent copper and .09 per cent nickel.

PROSPECTING PERMIT 99

Abidonne Oils Limited

55 L/4

now Ulster Petroleum Limited

(62°07'N, 95°45'W)

690, 700 - 6th Avenue Southwest,
Calgary 1, Alberta.

References:

Baragar (1962); Wright (1967); Davidson (1970a)

Property:

Prospecting permit 99

55 L/4

Location:

The prospecting permit area is centred on the north of Carr Lake, 104 miles west of the settlement of Whale Cove.

History:

Prospecting permit 99, acquired in the spring of 1969 by Abidonne Oils Limited, corresponds to the area held as prospecting permit 1 by Giant Yellowknife Mines Limited in 1961 and early 1962. The original permit was acquired subsequent to a major geological mapping program over 5,775 square miles, which led to the discovery of a number of gossan zones and a zinc-copper showing (62°04'11"N, 95°52'50"W) within the Carr Lake area. During the 1961 field season, 272 line-miles of electromagnetic and magnetic surveys, detailed geological mapping and 7,418 feet of diamond drilling was carried out on the DEE claims which cover the zinc-copper showing (Baragar, 1962, pp. 25-26). Forty-four DEE claims were still in good standing in 1970 when the Abidonne Oil Limited permit was relinquished.

Description:

Four lithological groups underlie the permit area. Metamorphosed volcanic and sedimentary rocks of the Kaminak Group and a series of intrusive plutons are cut by diabase dykes and overlain by sedimentary and volcanic rocks of the Hurwitz Group.

The Kaminak Group of massive-to-pillowed basaltic and andesitic greenstone (unit Am, Davidson, 1970a), hornblende schist and amphibolite (unit Am', op. cit.), mafic flows with intercalated felsic flows and tuffs (unit Av, op. cit.), undivided volcanic and sedimentary rocks (unit Avs, op. cit.),

intercalated amphibolitic and quartzo-feldspathic schist (unit Av', op. cit.), felsic tuff, agglomerate and flow breccia with associated quartz and quartz-feldspar porphyry intrusions (unit Af, op. cit.) and a sedimentary unit composed of grey-wacke, slate, minor tuff, volcanic-pebble conglomerate and iron-formation (unit As, op. cit.) are the predominant rock units in the southwestern and northwestern corners of the permit area. The amphibolitic and quartzofeldspathic schist, hornblende schist and amphibolite also occur in the southeast corner of the area.

Within the Carr Lake area the intrusive plutons are mainly massive hornblende tonalite with minor leucodiorite and biotite-hornblende granodiorite (unit 2, op. cit.) and massive porphyritic biotite adamellite (unit 3, op. cit.). One large tonalite pluton trends northeast from the central-western border of the permit area to the northeast corner between Kaminak Group units to the northwest and Hurwitz Group units to the southeast. Hornblende gabbro or diorite (unit 1a, op. cit.) occurs at the contact of Hurwitz Group sediments with the tonalite. Tonalite also outcrops southeast of the Hurwitz Group in the east-central part of the region along with minor hornblende gabbro or diorite (unit 1, op. cit.) and adamellite. The adamellite is the predominant intrusive in the southeast corner of the permit area.

The area east and north of Carr Lake is marked by the presence of a number of faults trending east to northeast and west-northwest to north-northwest.

Current Work and Results:

During the summer of 1969 Geoterrex Limited undertook an airborne radiometric survey of prospecting permit 99 for Abidonne Oils Limited. The radiometric readings, the highest of which was 13 counts per second above background for the thorium trace, did not indicate the presence of any interesting concentration of radioactive minerals.

PROSPECTING PERMIT 102
Republic Resources Limited,
660, 330-5th Avenue Southwest,
Calgary 1, Alberta.

55 L/6
(62°22'N, 95°15'W)

References:

Wright (1967); Davidson (1970a)

Property:

Prospecting permit 102

55 L/6

Location:

The permit area extends north from Kaminak Lake and includes the northwest arm of Kaminak Lake, Savage Lake and the greater part of O'Neil Lake.

History:

The area acquired by Republic Resources Limited in 1969 as prospecting permit 102 was held as prospecting permit 5 by Giant Yellowknife Mines Limited in 1961 and early 1962. The original permit was acquired subsequent to an extensive mapping program performed in 1960. Detailed geological mapping, electromagnetometer and magnetometer surveys, trenching and diamond drilling were carried out over two sulphide zones within the permit area in 1961. Disseminated-to-massive pyrite with trace chalcopyrite and graphite occur at the contact of agglomerate with metasediments and andesite and of andesite with a granitic sill two miles south of O'Neil Lake at 62°24'47"N and 95°06'53"W. A strong electromagnetic anomaly was traced for 2800 feet along the west contact of the granitic sill. An 85-foot hole drilled on the anomaly intersected massive pyrrhotite stringers with traces of chalcopyrite which assayed .04 per cent copper and .16 per cent zinc over one foot. One and a half miles to the southwest (62°23'27"N, 95°05'27"W), four holes totalling 276 feet were drilled under gossan zones consisting of pyrite, pyrrhotite, minor chalcopyrite and sphalerite as stringers and disseminations in andesite. Two surface samples assayed .81 and .57 per cent zinc but the best drill hole intersection assayed only .10 per cent copper over one foot. The second showing (62°04'08"N, 95°23'06"W), on the north shore of the northwest arm of Kaminak Lake, consists of west- to northwest-trending shear zones and quartz veins with minor pyrite and chalcopyrite. Surface samples assayed 1.3 per cent copper and .13 ounces of gold per ton, but the best intersection encountered in the drilling

of five holes, totalling 349 feet, was .03 per cent copper and .30 ounces of gold per ton.

Description:

The permit area covers metamorphosed volcanic and sedimentary rocks of the Kaminak Group, intrusions of gabbroic to monzonitic compositions and a narrow syncline of Hurwitz Group sediments and volcanics.

Massive and pillowed basaltic-to-andesitic greenstones (unit Am, Davidson, 1970a) and mafic flows with intercalated felsic flows and tuffs (unit Av, op. cit.) of the Kaminak Group outcrop in the southern quarter of the permit area and on an axis trending north along the eastern shore of O'Neil Lake. A narrow east-trending band of felsic tuff, agglomerate and flow breccia (unit Af, op. cit.) occurs within the greenstones near the north shore of Kaminak Lake. The central part of the permit area is underlain by greywacke and slate (unit As, op. cit.), the sedimentary unit of the Kaminak Group.

Two large masses of hornblende-gabbro or diorite (unit 1, op. cit.) outcrop in the northwestern and northeastern corner of the permit area and border the narrow north-trending band of basaltic and andesitic greenstones. The western gabbro intrusion extends south of O'Neil Lake to the central part of the permit area. A major intrusion of massive biotite adamellite (unit 3, op. cit.) extends southwest from the southern shore of O'Neil Lake. Southeast of this lake, a five- by eight-mile area is underlain by massive hornblende tonalite (unit 2, op. cit.). Smaller intrusions of adamellite and tonalite outcrop in the greenstone belt in the southern part of the permit area.

The Hurwitz Group sediments and volcanics outcrop in the permit area as a one- to two-mile wide syncline trending east-northeast from the southwest corner of the area. The polymictic conglomerate, greywacke and impure sandstone (unit Aha, op. cit.) basal member of the group outcrops to the southwest in contact with Kaminak Group units, small intrusions of tonalite and adamellite and the thin-bedded orthoquartzite (unit Ahb, op. cit.) in the core of the syncline. The basal unit is absent further to the east where the orthoquartzite unconformably overlies tonalite and mafic flows. The two upper members of the Hurwitz Group, slate, siltstone, greywacke (unit Ahc, op. cit.) and massive and pillowed andesitic greenstones (unit Ahd, op. cit.) outcrop along the axis of the syncline.

Current Work and Results:

Reconnaissance geological and geophysical surveys were carried out in 1970 over the parts of prospecting permit 102 retained on the basis of a photogeological study performed in 1969. The 1970 surveys outlined four areas of interest, two of which were investigated by Giant Yellowknife Mines Limited in 1961. The results of the earlier investigations and a description of the areas involved have been given above.

Within the third area (62°19'30"N, 95°08'15"W) eight miles southeast of O'Neil Lake, a number of quartz veins containing pyrite, chalcopyrite, arsenopyrite and galena cut the major tonalite intrusions. A grab sample from a 10-foot wide and 500-foot long vein assayed .34 ounces of gold and 4.96 ounces of silver per ton, .41 per cent copper, 5.25 per cent lead and .01 per cent zinc. A sample from a nearby 8-foot wide and 500-foot long vein assayed only .02 ounces of gold per ton and 1.75 per cent copper. One half mile to the southeast (62°18'45"N, 95°05'45"W) a 100-foot wide shear zone trends east-northeast along the southeast border of a horst of Kaminak Group greenstone within the Hurwitz Group syncline. Magnetite and chalcopyrite stringers as well as quartz veins occur along the side of the shear zone and in the greenstone.

KIR CLAIMS

J. Kilgour and P.H. Read,
1501 Woodbine Avenue,
Apartment 1712,
Toronto 13, Ontario.

Gold

55 L/9,10
(62°32'45"N, 94°31'45"W)

References:

Wright (1967); Davidson (1970a)

Property:

63 KIR claims

55 L/9,10

Location:

The claim group trends northwest from two miles northwest of Happtiyik Lake to the south shore of an elongate west-trending lake.

History:

The KIR claims, staked in the summer of 1969 by J. Kilgour and P.H. Read, lapsed in 1971.

Description:

A south-trending one- to two-mile wide tongue of massive grey hornblende tonalite (unit 2, Davidson, 1970) outcrops along the eastern border of the KIR claims. The tonalite is enclosed within intercalated amphibolitic and quartzo-feldspathic schists (unit Av', op. cit.) which underlie most of the claim group. These rock units are disrupted by two west-trending faults, one of which coincides with the northern border of the claim group while the second crosses in the east-central part of the staked area.

Current Work and Results:

Grab samples collected while prospecting in 1969 were found to contain up to 2.28 ounces of gold per ton. In 1970 a number of grids were established and systematic channel-sampling of trenches was performed. Four gold-bearing quartz-rich zones were detected and trenched. Three of the zones (62°32'45"N, 94°31'15"W), 700, 400 and 400 feet long, trend northwest in the centre of the claim group just north of a northwest-trending fault. Channel samples from these zones gave assays of up to .02 ounces of gold per ton over five feet. A fourth arcuate zone (62°33'20"N, 94°31'30"W) trends north for 250 feet and a sample from this zone assayed .36 ounces of gold per ton over 2.3 feet.

PROSPECTING PERMIT 122

F. T. Cousins Minerals Limited
510, 320 - 7th Avenue Southwest,
Calgary, Alberta.

65 A/13
(60°52'N, 97°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 122

65 A/13

Location:

The prospecting permit area includes the eastern half

of Hurwitz Lake, all of Tatinnai Lake and the northern shore of Longpre Lake.

History:

Prospecting permit 122, acquired in early 1969 was relinquished by F. T. Cousins Minerals Limited in 1970.

Description:

The permit area is at the southern border of the Ennadai-Rankin greenstone belt. Intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967) outcrop in the northern half of the permit area in contact with gneissic and impure granite, granodiorite and allied rocks (unit 13, op. cit.) to the south. The contact trends east-northeast across the centre of the permit area. A small remnant greenstone belt outcrops in the southeast corner of the permit area within the granitic rocks.

The northwestern quarter of the permit area is underlain by greywacke, conglomerate, argillite, slate and phyllite (unit 8, op. cit.), the basal member of the Hurwitz Group. The quartzite member of the group (unit 9, op. cit.) outcrops in two small areas at the north-central border of the permit area and in the northeastern corner.

Current Work and Results:

A photogeological study and an airborne spectrometer survey of the area were performed in 1969. The geophysical survey encountered 34 individual radioactive anomalies, in the southeastern quarter of the permit, 17 of which showed above background readings in the uranium channel.

The uranium anomalies occur in five groups and all but the largest group are underlain by gneissic granite. The largest group (60°47'N, 97°32'W) consists of eight anomalous readings of 6 to 24 uranium counts per second above background and occurs within the greenstone remnant in the southeast corner of the permit. The second largest group contains five individual anomalies of 3 to 24 uranium counts per second above background. The three smaller groups (60°44'30"N, 97°42'W; 60°45'30"N, 97°38'W; 60°48'30"N, 97°35'30"W) have individual readings ranging from 3 to 45 uranium counts per second above background.

PROSPECTING PERMITS 120 and 121
Canada Northwest Land Limited
920, 356 - 4th Avenue Southwest,
Calgary, Alberta

65 B/12,13
(60°45'N, 99°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 120
Prospecting permit 121

65 B/12
65 B/13

Location:

The two prospecting permits cover an area extending north from the mouth of Smith Bay, on the northeast shore of Nueltin Lake, to a point 20 miles south of Hicks Lake.

History:

The permits were acquired by Canada Northwest Land Limited in 1969.

Description:

The prospecting permits cover parts of a narrow discontinuous, north-trending belt of metavolcanic and meta-sedimentary rocks in granitic and gneissic terrane. The southern part of the belt consists of intermediate-to-basic volcanic rocks with derived amphibole schist and gneiss (unit 7, Wright, 1967) to the southeast; Hurwitz Group quartzite (unit 9, op. cit.) and the overlying greywacke, impure quartzite, slate, phyllite, conglomerate, limestone and dolomite (unit 10, op. cit.) to the west, and derived gneiss, schist, amphibolite and granulite (unit 12, op. cit.) to the north. This five- to ten-mile wide and 15-mile long remnant is separated from the major part of the belt five miles to the north by gneissic granitic rocks. The northern part of the belt consists mainly of gneiss, schist, amphibolite and granulite, derived from older metasediments and metavolcanics, with a narrow band of Hurwitz quartzite marking the eastern edge of the belt. The remainder of the permit area is underlain by gneissic granite, granodiorite and allied rocks (unit 13, op. cit.) with massive granite (unit 14, op. cit.) outcropping along the eastern border and in the southeast corner of the area.

Current Work and Results:

An airborne gamma radiation spectrometer survey flown by Louis Cadesky Associates Northern Limited in the summer of 1969 failed to outline any anomalies on the permit area.

PADLEI TREND PROJECT

Atlantic Richfield Company 65 B/15, G/1, H/4, 11, 12, 13
now Atlantic Richfield Canada Limited (61°15'N, 98°00'W)
717 Fifth Avenue,
New York, N.Y. 10022

References:

Eade (1964 and 1966); Wright (1967)

Property:

Prospecting permit 125	65 B/15
Prospecting permit 144	65 G/1
Prospecting permit 150	65 H/4
36 PO, 236 RICH, and 60 TOM claims	65 H/11
113 ARCTIC and 201 ATLANTIC claims	65 H/11, 12, 13

Location:

The southernmost prospecting permit 125 extends from the northeastern end of Nueltin Lake to include Sealhole and Fitzpatrick lakes. Prospecting permits 144 and 150, to the northeast, cover Ducker and Otter lakes, the northern shore of Tatinnai Lake and part of the Kognak River.

The PO, RICH and TOM claim group is 45 miles northeast of Otter Lake and trends east along the north shore of Ameto Lake. The ARCTIC and ATLANTIC claim group covers the peninsula between North and South Henik lakes and the eastern shore of North Henik Lake.

History:

Prospecting permits 125, 144 and 150 were acquired by W.P. Boyko, the Consolidated Energy Corporation Limited and Wainoco Oils & Chemicals Limited in the spring of 1969 and then optioned by the Atlantic Richfield Company. The claims were staked in March 1969 and transferred to the Atlantic Richfield Company in June 1970.

The area north of Ameto Lake and the area of prospecting permits 144 and 150 were previously held as prospecting permits 16, 44 and 46 by the Selco Exploration Company Limited between 1961 and 1967. The exploration programs performed at that time involved geological mapping, magnetometer surveying and diamond drilling of gold occurrences in quartz-magnetite iron-formation.

Description:

The prospecting permits cover the southwestern part of the Ennadai-Rankin greenstone belt and the southern part of a north-trending syncline of Hurwitz Group sediments. The claim groups are at the eastern border of the syncline.

The northwestern quarter of prospecting permit 125 is underlain by a northeast-trending tongue of Hurwitz orthoquartzite (unit 9, Wright, 1967) flanked to the north and southeast by narrow bands of older intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, op. cit.). The remainder of the permit area is underlain by impure gneissic granite, granodiorite and allied rocks (unit 13, op. cit.) and massive granitic rocks (unit 14, op. cit.). A small mass of diorite and gabbro (unit A, op. cit.) intrudes the quartzite at the southwest end of Sealhole Lake.

The southern part of the main Hurwitz Group syncline outcrops in the north-central part of the area covered by prospecting permits 144 and 150. Detailed geological mapping of the area was done by K.E. Eade (1964, 1966) who subdivided the Hurwitz Group into seven units. All but the basal unit outcrop within the permit area. The orthoquartzite, minor impure quartzite and pebble conglomerate (units 8(1964) and 9(1966)) unit of the group outcrops in a narrow zone along the semicircular border of the syncline and as the core of a small anticline between Ducker and Otter Lakes. The overlying slate, shale, siltstone and minor greywacke (units 9 and 10) outcrop southwest of Otter Lake and on the peninsula between Otter and Ducker Lakes. Dolomite, argillite and siltstone (units 10 and 11) underlie the areas south of Otter Lake and the northern shore of Ducker Lake. This unit is overlain by greywacke with minor siltstone (units 11 and 12) which outcrops north of Ducker Lake. The core of the syncline lies in the northeastern part of the prospecting permit 144 area and consists of impure quartzite, quartz-sericite schist, minor siliceous dolomite and argillite (units 12 and 13). This impure quartzite unit is repeated through faulting in two narrow east-trending zones south of Otter Lake. The youngest unit of the Group is gabbro sills which outcrop along the shores of Ducker Lake.

The syncline is underlain by a metasedimentary sequence including greywacke, subgreywacke, tuff, phyllite, minor volcanic rocks and quartz-magnetite iron-formation (unit 2, Eade, 1964 and 1966) and a metavolcanic sequence composed of andesite, dacite, gabbro, quartz latite, rhyolite and agglomerate (unit 1, op. cit.). The metasediments are intruded by granodiorite (units 6 (1964) and 7 (1966), op. cit.) along the eastern and western border of the permit area.

The claim group covers a belt of Hurwitz Group ortho-quartzite trending east along the north shore of Ameto Lake and north along the east shore of North Henik Lake. The sediments are in contact with the metavolcanic sequence and a granodiorite intrusion to the north and with metasediments to the south.

Numerous, normal, oblique faults trend east-northeast, north and northwest across the Hurwitz Group rocks.

Current Work and Results:

The 1969 exploration program performed on the permit areas and the claim groups for the Atlantic Richfield Company Limited involved reconnaissance geological traverses, the collection of representative rock samples, ground and airborne scintillometer surveys and an airborne spectrometer survey. The spectrometer survey outlined a total of 184 radioactive anomalies in the area.

In 1970, 75 of the airborne anomalies were investigated by geochemical and radiometric means. Water samples from streams, lakes and ponds in the general area of the anomalies were analyzed for radon. On the basis of the anomalous radon values, soil-gas and soil sampling traverses were run and an airborne scintillometer survey was flown. The outcrops within the area were also sampled.

In all of the anomalous areas investigated, the scintillometer readings were only slightly above background and boulder trains of radioactive granite were present.

PROSPECTING PERMIT 126

Canadian Delhi Oil Limited (33 1/3%) 65 B/16
now CanDel Oil Limited, (60°52'N, 98°15'W)
28th Floor, 330 - 5th Avenue Southwest,
Calgary, Alberta.

Trans-Canada Resources Limited (33 1/3%)
1980 - 1055 West Hastings Street,
Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)
680, 444 - 7th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 126 65 B/16

Location:

The permit area extends east from the east shore of Fitzpatrick Lake to the centre of Hurwitz Lake.

History:

Prospecting permit 126, acquired by Canadian Delhi Oil Limited in early 1969, covers the area held under prospecting permit 47 by the Selco Explorations Company Limited from 1964 to 1967. The prime target of the earlier work was gold deposits, none of which were discovered.

Description:

The prospecting permit covers the southern contact of the Ennadai-Rankin greenstone belt and a Hurwitz Group sediments syncline with the enclosing granitic rocks. Intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss of the greenstone belt outcrop in a north-trending arcuate belt extending from the west shore of Hurwitz Lake to the northeastern corner of the permit area. Two smaller metavolcanic belts trend north in the northwestern corner and west in the southwestern corner of the area.

The northern greenstone belts are overlain by greywacke, conglomerate, argillite, slate, phyllite and derived quartz-mica schist (unit 8, op. cit.). The sedimentary unit

outcrops north of Hurwitz Lake and in a belt trending west then north from the centre of the permit area to the western and northern borders. The belt is bordered to the south by a narrow arcuate band of the overlying Hurwitz Group quartzite (unit 9, op. cit.) trending west from the shore of Hurwitz Lake to the border of the permit area.

Impure gneissic granite, granodiorite and allied rocks (unit 13, op. cit.) outcrop along the southern border of the permit area and in a narrow northwest-trending zone west of Hurwitz Lake. A small body of diorite and gabbro (unit A, op. cit.) outcrops on the southwest shore of Hurwitz Lake.

Current Work and Results:

Gamma-ray spectrometer and INPUT electromagnetometer surveys were flown over the permit area in early 1969. Of the four main radiometric anomalies detected during the air-borne survey, three were examined by pace and compass reconnaissance traverses. The anomalies coincide with pink biotite granite boulder fields and are also partly due to topography.

Seventeen of the 19 INPUT electromagnetic anomalies detected during the airborne survey were also examined on the ground. A zone of well-defined northeast-trending conductors on the west side of Hurwitz Lake (60°49'30"N, 98°04'30"W) coincides with quartzite, gritty sandstone and conglomerate in contact with gneissic granite and intruded by a diorite gabbro body. An outcrop located within the one-mile wide zone consists of fine-grained chloritized argillite with interlayered quartzite and disseminated pyrite.

A discontinuous moderate conductor locally with associated magnetic response trends northeast over a length of five miles in the southwest corner of the permit area (60°48'N, 98°26'W). The zone partly coincides with the meta-sediment-metavolcanic contact and contains several boulders of chloritized biotite gneiss with traces of graphite and an outcrop of volcanic rocks.

An irregular cluster of moderate-to-strong one-line conductors without magnetic response occurs in the east-central part of the permit (60°52'30"N, 98°11'30"W). Outcrops in the area consist of interlayered meta-argillites and metavolcanic rocks with traces of graphite and leached iron sulphides.

Two isolated one-line moderate-to-strong conductors with coincident magnetic response occur in the northeast

corner of the permit (60°57'30"N, 98°02'W) over chloritized volcanic rocks intruded by a stockwork of discontinuous arsenopyrite and gold-bearing quartz veins. Two trenches by the Selco Exploration Company Limited have exposed one vein two to eight feet wide and 100 feet long.

A discontinuous east-trending weak-to-moderate conductive zone extends for over two miles along the northern border of the permit (61°00'N, 98°02'W) and is underlain by basic volcanic rocks which, in the vicinity of the anomaly, contain disseminated pyrite.

A similar zone was outlined on the north shore (61°56'30"N, 98°20'W) of a large lake northwest of Hurwitz Lake. Outcrop in the vicinity of the anomaly consist of argillaceous metasedimentary rocks containing traces of graphite.

The one anomalous zone not examined on the ground is in the northwest part of the permit (60°58'30"N, 98°25'W) and contains one broad conductor with a coincident 30-gamma magnetic anomaly.

PROSPECTING PERMIT 131	Copper
St. Mary's Exploration Limited	65 C/l
4 Richmond Street East,	(60°07'N, 100°15'W)
Toronto 1, Ontario.	

References:

Wright (1967); Eade (1971)

Property:

Prospecting permit 131	65 C/l
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Location:

The permit area extends north from the Northwest Territories - Manitoba boundary, between Nueltin Lake and Charlie Lake, to the southern part of Windy Lake.

History:

Prospecting permit 131 was acquired in early 1969 by G.M. Ackerley for St. Mary's Exploration Limited and relinquished in 1970.

Description:

The northwestern quarter of the heavily drift-covered permit area is underlain by sediments of the Hurwitz Group and their derived gneisses. A one- to three-mile wide east-trending belt of argillite, phyllite, and minor dolomite (unit 8, Eade, 1971) grades into hybrid gneiss and granodiorite (unit 8b, op. cit.) to the south and is overlain by dolomite, limestone with minor argillite and phyllite (unit 9, op. cit.) to the north. Paragneiss with minor paraschist (unit 3, op. cit.) and meta-arkose (unit 3b, op. cit.) outcrop in the southwestern corner of the permit area. The older units are intruded by white to grey granodiorite (unit 14a, op. cit.) in the south-central part of the permit area and by quartz monzonite to granodiorite (unit 14, op. cit.) in the south-eastern corner of the area. The central portion of the region is underlain by coarse-grained porphyritic granite to quartz monzonite, commonly fluorite-bearing (unit 15, op. cit.).

Current Work and Results:

Three teams of prospectors undertook a reconnaissance exploration program of the permit area in 1969. Geiger counters were used during traversing but no radioactive zones were detected in outcrops of Hurwitz Group metasediment in the northwestern corner of the permit area.

Disseminated chalcopyrite and malachite were noted in float concentrated in a small area of 60°11'30"N and 100°29'20"W. Subsequent work led to the identification of chalcopyrite-bearing float at eight points over a northeast strike distance of five miles.

NUELTIN PROJECT	Copper, Lead, Zinc
Yellowknife Bear Mines Limited (31.6%)	65 C
1005, 360 Bay Street,	(60°30'N, 101°00'W)
Toronto 1, Ontario.	
Pacific Petroleums Limited (26.1%)	
700, Sixth Avenue Southwest,	
Calgary 2, Alberta.	
Blue Crown Petroleums Limited (13.05%)	
2900 Fidelity Union Tower,	
Dallas, Texas 75201	
Chieftain Development Company Limited (13.05%)	
Chieftain Building,	
10985 - 124th Street,	
Edmonton, Alberta.	
and	
Imperial Oil Enterprises Limited (11.2%)	
111 St. Clair Avenue West,	
Toronto 7, Ontario.	

References:

Wright (1967); Eade (1971)

Property:

Prospecting permit 132	65 C/2
Prospecting permit 133	65 C/5
Prospecting permit 134	65 C/7
Prospecting permit 135	65 C/9
Prospecting permit 136	65 C/11
Prospecting permit 222	65 C/8

Location:

The prospecting permits can be divided into two groups: an eastern group comprising prospecting permits 132, 134, 135 and 222 centred at 60°22'N and 100°30'W, and a western group, prospecting permits 133, 136 and 137, centred at 60°30'N, 101°30'W. The eastern group of permits extends north from the Northwest Territories - Manitoba border west of Charlie Lake to 12 miles north of the Windy and Red rivers. Permits of the western group cover an L-shaped area extending east from the western boundary of the Keewatin District to nine miles east of Gale Lake in the south and 23 miles east of Rehel Lake in the north.

History:

Prospecting permits 132 to 137 were acquired by Yellowknife Bear Mines Limited in early 1969. In 1970 prospecting permits 133 and 137 were relinquished and prospecting permit 222 was acquired.

Description:

The Nueltin Project studies covered two northeasterly-trending synclines of Hurwitz Group and younger sediments bounded by granodiorite plutons.

Argillite, phyllite and greywacke with minor dolomite (unit 8, Eade, 1971) form the oldest unit of the Hurwitz Group within the eastern syncline. On the southeastern limb, the unit has been metamorphosed into metagreywacke and paragneiss with minor calc-silicate bands (unit 8a, op. cit.) to the southwest and hybrid gneiss and granodiorite (unit 8b) to the southeast. The argillaceous unit is overlain by dolomite and limestone with minor argillite and phyllite (unit 9, op. cit.). Arkose to subgreywacke, conglomerate and pebbly lithic greywacke to subgreywacke (units 11, 12 and 13, op. cit.) underlie the axial zone of the syncline.

Northwest of the syncline the older Hurwitz Group units are in fault-contact with the basement complex consisting of grey biotite granodiorite gneiss and unfoliated-to-well-foliated granodiorite-to-quartz monzonite (units 4, 6 and 6a, op. cit.). Younger intrusive quartz monzonite-to-granodiorite and coarse-grained porphyritic granite-to-quartz monzonite (units 14 and 15, op. cit.) mark the southeastern limit of the syncline. The area about Charlie Lake, south of the syncline, is underlain by paragneiss and minor parashist (unit 3, op. cit.)

Three faults mark the contact of the older Hurwitz Group units with the basement complex: one trends north-northwest for 40 miles, a second north-northeast then northeast for 57 miles, and a third southeast for 12 miles. The northeastern half of the structure is disrupted by numerous smaller faults trending west-northwest to north-northwest.

The western syncline is less disturbed than the easterly structure and consists mainly of the younger members of the Hurwitz Group. The older argillite, phyllite, greywacke, limestone and dolomite units outcrop only in the northeastern part of the southern limb of the structure and in restricted areas southwest of Kasba Lake. Rocks outcropping along the

axis of the syncline are of the arkose-to-subgreywacke, conglomerate and lithic greywacke-to-subgreywacke units.

Extensive masses of coarse-grained porphyritic granite-to-quartz monzonite intrude the syncline to the south, west and northeast. To the east, the older units of the Hurwitz Group are in fault contact with grey biotite granodiorite-gneiss, mixed granodiorite and grey biotite gneiss (unit 6c, op. cit.). Arkose to subgreywacke outcropping along the north-western limb of the syncline is in fault-contact with a band of meta-andesite, diorite, metavolcanic rocks and minor iron-formation (unit 1, op. cit.)

Two main faults cut the northeastern part of the syncline: one trending northeast from Ennadai Lake for 20 miles, while the second trends west for at least 16 miles and bisects Rehel Lake.

Current Work and Results:

In 1969 a 27-man crew conducted a reconnaissance geochemical and geological exploration program over the permit areas. The geochemical program involved a survey of the copper, lead, zinc, nickel and cobalt content of stream sediments and the radon, copper, zinc and cobalt content of the stream water. A similar reconnaissance program was performed on the newly-acquired prospecting permit 222 in 1970.

The 1969 radon-water survey did not reveal the presence of concentrations of uranium minerals within the permit area. However, the stream sediment and water geochemical studies outlined twelve areas of interest which were subjected, in 1970, to detailed stream sediment and soil geochemical surveys, induced polarization, electromagnetic and magnetic surveys and in some cases, geological mapping, trenching and diamond drilling. Of the 12 areas studied in 1970, only six enclosed interesting geochemical and geophysical anomalies.

In the northeastern part of prospecting permit 132, a three-mile by six-mile area ($60^{\circ}10'45''\text{N}$, $100^{\circ}35'\text{W}$) was investigated subsequent to the discovery, in 1969, of angular boulders of siliceous greywacke containing disseminated chalcopyrite and pyrite. A sample from one of the boulders assayed 2.40 per cent copper, .06 ounces of gold and .32 ounces of silver per ton. Trenching in 1970 uncovered decomposed mineralized bedrock into which two holes, 82 feet and 78 feet long, were drilled 100 feet apart. Two mineralized zones, 10 and 15 feet wide, containing 10 to 15 per cent

sulphides and separated by 53 feet of rock containing one to three per cent sulphides were intersected in the drill holes. Samples from the sulphide zones assayed .02, .11 and .01 per cent copper over ten, five and five feet. Geophysical and geochemical surveys were performed along two lines $3\frac{1}{2}$ and $2\frac{1}{4}$ miles long across the area. Two zones with good induced polarization response were detected 4,000 feet apart. The southerly zone, underlain by greywacke and arkose, includes the showing drilled and two stronger anomalies in stratigraphically lower beds of the unit. An argillite horizon to the north encloses three induced polarization anomalies, one of which has been traced by electromagnetometer over a strike length of four miles. The copper content of soil samples collected over these geophysical anomalies is slightly above background value.

In 1969 a number of stream sediment samples with anomalously high metal content were collected along the contact zone of paragneiss with granodiorite at $60^{\circ}02'15''N$, $100^{\circ}45'30''W$ northwest of Charlie Lake. An electromagnetic survey performed in 1970 outlined a long, moderately strong conductor within the contact zone but induced polarization readings taken along a short line over the conductor indicated only weak response.

Geochemical soil sampling and an electromagnetic survey outlined a weakly anomalous zone near the northern contact of the granodiorite with metagreywacke to paragneiss at $60^{\circ}03'20''N$, $100^{\circ}47'40''W$.

A soil geochemical anomaly at the contact of argillaceous sediments with limestone and dolomite ($60^{\circ}07'25''N$, $100^{\circ}45'40''W$) was surveyed with the geophysical instruments which detected only slight anomalies.

Anomalous concentrations of copper were found in soil samples collected over dolomite and limestone in fault-contact with well-foliated granodiorite-to-quartz monzonite northeast of Poorfish Lake ($60^{\circ}17'36''N$, $100^{\circ}54'W$). Two induced polarization lines were run across the area $1\frac{1}{2}$ miles apart. The southerly line detected two strong anomalies on the edge of the anomalous soil zone while the northerly line indicated only weak response in two areas. An electromagnetic survey outlined numerous conductors which do not coincide with the induced polarization anomalies.

The sixth area of interest, on the northeastern edge of the western syncline at $60^{\circ}36'50''N$, $101^{\circ}12'W$, is underlain by a narrow zone of Hurwitz Group argillaceous sediments in contact with limestone and dolomite to the west and gneissic

granodiorite with abundant paragneiss to the east. The 1969 exploration program detected anomalous concentrations of metals in the stream sediments and uncovered outcrops of greywacke with small quantities of disseminated pyrite, pyrrhotite and chalcopyrite. In 1970 the area was mapped and the sulphide zones trenched. Two- to six-inch wide beds containing 10 per cent sulphides and .1 to .07 per cent copper were exposed in several locations. An induced polarization survey run across the area gave weak response in the vicinity of the sulphide zones, stronger response in overburdened areas to the north and south, and outlined two anomalies at the argillaceous sediment-dolomite and limestone contact to the west.

PROSPECTING PERMITS 145,146,147 and 148
Eldorado Nuclear Limited
800 - 151 Slater Street,
Ottawa, Ontario.

65 G/2,3,6,7
(61°15'N, 99°00'W)

References:

Eade (1966); Wright (1967)

Property:

Prospecting permit 145	65 G/2
Prospecting permit 146	65 G/3
Prospecting permit 147	65 G/6
Prospecting permit 148	65 G/7

Location:

This block of four permits extends east from the west shore of Elliot Lake to the east shore of Mountain Lake and north from eight miles north of Sealhole and Fitzpatrick lakes to 15 miles north of Griffin Lake.

History:

Prospecting permits 145 to 148 were acquired by Eldorado Nuclear Limited in early 1969 and relinquished in 1970. Selco Exploration Company Limited held the eastern half of the area under prospecting permits 29 and 45 from 1962 to 1965 and 1964 to 1967. Extensive exploration, including airborne magnetometer surveys, boulder tracing, geological mapping, trenching and diamond drilling were performed on gold-bearing iron-formation bands northeast and east of Mountain Lake. Two hundred and thirty-six claims recorded at that time by the company lapsed in 1972.

Description:

The prospecting permits cover parts of two basins of Hurwitz Group sediments within a basement complex of gneissic granite and granodiorite, metavolcanics and metasediments. To the west the roughly circular Watterson Lake basin consists of a one- to two-mile wide rim of white quartzite with some impure quartzite and gritty sandstone, minor intercalated greywacke and siliceous iron-formation (unit 9, Wright, 1967), and a core of greywacke, impure quartzite, slate, phyllite, conglomerate, dolomite and limestone (unit 10, op. cit.). A narrow one- to two-mile wide belt of diorite and gabbro (unit A, op. cit.) outcrops on the eastern side of the basin between the predominantly quartzite rim and the greywacke core of the structure. The basin is enclosed by granite, granodiorite and allied rocks, in large part gneissic and impure (unit 13, op. cit.).

A north-northwest-trending belt of Hurwitz Group sediments outcrops within the eastern two permits in contact with greywacke, greywacke conglomerate, subgreywacke, tuff, phyllite, argillite and minor volcanic rocks (unit 2, Eade, 1966) to the east, and andesite, dacite, gabbro, quartz latite, rhyolite, agglomerate and minor tuff (unit 1, op. cit.) to the north and west. Granodiorite, granite and granite pegmatite, (unit 7, op. cit.) outcrop in contact with the meta-volcanics to the west and with the Hurwitz Group sediments to the north and south. The Hurwitz Group units within the two permits are: orthoquartzite with minor impure quartzite and pebble conglomerate (unit 9, op. cit.) in a one-quarter-to one-mile wide zone along the edge of the belt; slate, shale, siltstone and minor greywacke (unit 10, op. cit.) south of Hawk Hill Lake and along the southeastern and western part of the structure; dolomite, argillite, siltstone and some greywacke (unit 11, op. cit.) west of Mountain Lake and impure quartzite, quartz-sericite schist, minor dolomite and argillite (unit 13, op. cit.) in the north-central part of the zone northwest of Mountain Lake. Gabbro sills (unit 14, op. cit.) outcrop within the area underlain by the slate, shale and siltstone unit south and east of Hawk Hill Lake and along the western edge of the belt. The northwestern and southeastern parts of the structure have been disrupted by major north-trending and minor east-trending faults.

Current Work and Results:

Eldorado Nuclear Limited's 1969 program involved an interpretation of published aeromagnetic maps, geological mapping, a hydrogeochemical survey, a stream sediment and

rock-chip geochemical survey, and two airborne radiometric surveys. The airborne surveys, one using a total-count system and the second using a four-channel system, outlined a number of strong anomalies caused by granitic outcrops and boulder fields. Three weaker anomalous zones were outlined in the east shore of Watterson Lake, the southeast shore of Griffin Lake and the north shore of Hawk Hill Lake within Hurwitz Group sediments.

A total of 696 water samples, 235 stream sediment samples and 63 rock samples were collected during the geochemical surveys. The water was analyzed for radon and uranium, the stream sediments for copper, nickel, zinc and uranium and the rock samples for copper, lead, zinc, nickel and cobalt. Anomalous concentrations of radon were detected in water samples from five areas within the eastern belt of Hurwitz Group sediments. Two of the anomalies occur on the east shore of Mountain Lake and the other three lie to the south and east of Griffin Lake.

The stream sediment survey revealed six groups of anomalous samples and four single-sample anomalies. The first group (61°20'N, 99°00'W) of seven samples with anomalous nickel content is associated with a southeasterly-trending dyke three miles northwest of Griffin Lake. A sample with anomalous copper and uranium content was collected from a small lake south of the first group. Stream sediments with anomalous nickel, copper and zinc content were obtained from two locations seven miles north of Griffin Lake at 61°25'N, 98°33'W. The streams from which the sediments were obtained drain metapelitic schist and lean magnetic iron-formation. A third group (61°25'N, 98°33'W) of five samples contained moderately high concentrations of uranium. The sediments were collected from streams draining areas underlain by metapelites. Five widely spaced samples, one with high uranium content and four with lesser uranium values, were collected from the area (61°14'N, 98°45'W) just east of the south-trending bay in Griffin Lake. The fifth group consists of seven sediment samples with anomalous nickel which were collected from the east shore of Mountain Lake at 61°12'N, and 98°31'W. A last group of two uranium-rich samples was collected from streams draining orthoquartzite southeast of Hawk Hill Lake at 61°01'N, 98°32'W.

MONTGOMERY PROJECT	Uranium
Argosy Mining Company Limited,	65 G/8,9; H/5,10,11,12,15
Denison Mines Limited,	(61°43'N, 96°55'W)
Lakehead Mines Limited,	
Roman Corporation Limited,	
all: 20th Floor, 4 King Street West,	
Toronto, Ontario	

References:

Eade (1964, 1966); Bell (1970, 1971)

Property:

140 MIKE claims	65 G/8,9; H/5,12
700 DEN claims	65 H/10,11,15

Location:

The DEN claims cover the southeastern shore of a series of lakes and streams joining Ameto Lake to Kinga Lake and extend from the north shore of a large lake northeast of Ameto Lake to four miles southwest of Kinga Lake. The MIKE group of claims extends east from the shore of Bray Lake to four miles northwest of Montgomery Lake.

History:

In 1961 Selco Exploration Company Limited drilled 21 AX holes of 200 to 300 feet length and eight X-ray holes totalling 335 feet, to explore the gold-bearing potential of a conglomerate northeast of Ameto Lake. The original claims were allowed to lapse and the area was restaked as the DEN claims in early 1969 at the same time as the MIKE claims were staked. Subsequent to the 1969 program on the DEN claims, all of the MIKE claims and 278 of the DEN claims lapsed.

Description:

The DEN claims cover the northern half of a synclinorium of Hurwitz Group rocks trending northeasterly from Ameto Lake to Padlei within the volcano-sedimentary assemblage of the Kaminak Group (units 1 and 2, Bell 1970). Montgomery Lake Sedimentary Rocks: quartz arenite, grit, siltstone, quartz-pebble conglomerate and minor subarkose and polymict conglomerate (unit 6, op. cit.) outcrop along the southeastern edge of the synclinorium in contact with the older volcano-sedimentary assemblage. Overlying the Montgomery Lake sedimentary rocks and in contact with the Kaminak Group units

along the northwest edge of the structure are the Padlei Formation, lower Hurwitz Group, polymict boulder to pebbly conglomerate and pebbly mudstone, laminated siltstone and mudstone, and minor arkose (unit 7, op. cit.). The axial zone of the synclinorium is underlain by the two members of the Kinga Formation; the Maguse member, coarse- to medium-grained quartz arenite with minor grit and oligomict conglomerate (unit 8a, op. cit.) and the Whiterock Lake member, fine-grained quartz arenite (unit 8b, op. cit.). Slaty-cleaved mudstone, siltstone, minor tuff and greywacke of the Ameto Formation (unit 9, op. cit.) outcrop in the southwestern part of the claim group and are intruded by a northeast-trending gabbro and metagabbro sill (unit 10, op. cit.).

The irregularly-shaped synclinorium is disrupted by a series of southeast- to northeast-trending faults in the southwestern and northeastern parts of the staked area.

The MIKE claims are underlain by orthoquartzite with minor impure quartzite and pebble conglomerate (unit 8, Eade 1964); (unit 9, Eade 1965) underlain by boulder conglomerate, greywacke conglomerate and greywacke (unit 8a and 9a, op. cit.) and overlain by slate, shale, siltstone and minor greywacke (units 9 and 10, op. cit.). These units of the Hurwitz Group are folded into a northeast-plunging anticline.

Current Work and Results:

Detailed geological mapping in 1969 of the southeastern limb of the synclinorium, within the DEN claims, outlined the distribution of the Montgomery Lake sedimentary rocks. In 1970, detailed examination of areas mapped in 1969 as underlain by Montgomery Lake sedimentary rocks, airborne and ground radiometric surveys, a soil radon survey and a reconnaissance very-low-frequency electromagnetometer survey were performed. Six holes, totalling 2102 feet, were drilled into the basal units of the synclinorium at 61°47'N and 96°46'W. The southeasternmost drill hole intersected a sequence of lapilli tuff and fine agglomerate which grade, with alterations, into quartzose waterlain volcano-clastics, quartzose greywacke with thin layers of argillite and crossbedded quartzite. Nine hundred feet of section, not explored, are overlain by 750 feet of fine- to medium-grained, crossbedded siliceous quartzite which resembles the quartzite associated with the volcanics. A unit of tightly-packed polymict conglomerate 75 feet thick overlies the quartzite along an erosion surface that truncates beds and crossbeds. Samples from this slightly radioactive conglomerate which contains disseminated pyrite,

assayed .004 per cent and .002 per cent uranium oxide over 4 and 8 feet. The conglomerate is overlain by 1000 feet of medium- to coarse-grained, greenish, sericitic, feldspathic quartzite with intercalated layers of quartz grit, small quartz pebble conglomerate, argillaceous quartzite, siltstone and argillite. Two hundred feet above the polymict conglomerate a 28-foot thick argillaceous member is overlain by the most pyritic conglomerate encountered. Samples from this unit assayed up to .025 per cent uranium oxide over one foot. A 12-foot section of conglomerate 45 feet below the latter assayed .017 per cent uranium oxide. The upper 500 feet of the gritty sequence is exposed and contains three more zones of weakly radioactive, pyritic quartz-pebbly conglomerate. The coarse quartzite grades upward into 1500 feet of fine-grained quartzite which lacks pebble conglomerate interbeds and is unconformably overlain by rocks of the Padlei Formation. The various geo-physical and geochemical reconnaissance surveys undertaken in the area of the drill holes proved useful in detecting extensions of radioactive conglomerate beds where these occur under overburden.

PROSPECTING PERMIT 175

Yukon Geothermal Company Limited,
210, 512 - 8th Avenue Southwest,
Calgary, Alberta.

65 G/15
(61°52'N, 98°45'W)

References:

Eade (1966); Wright (1967)

Property:

Prospecting permit 175

65 G/15

Location:

The permit area, west of Nowyak Lake, extends north from five miles north of Bate Lake to 16 miles south of the Kazan River.

History:

Prospecting permit 175 was acquired by Yukon Geothermal Company Limited in early 1969.

Description:

The main geological feature within the area of prospecting permit 175 is the southwestern part of a five- to twenty-mile wide greenstone (unit 7, Wright, 1967) belt trending northeast for 100 miles from Sutcliffe Lake to 16 miles northeast of the southern tip of Yathkyed Lake. The belt is bounded on either side by granite, granodiorite and allied rocks (unit 13, op. cit.) and gneiss, schist and migmatite (unit 12, op. cit.) and encloses two lenses of undifferentiated Hurwitz Group metasediments (unit 11, op. cit.), one of which outcrops within the permit area.

The greenstone assemblage was subdivided by Eade (1966) into andesite, dacite, gabbro, quartz latite, rhyolite and agglomerate (unit 1, op. cit.), enclosing gabbro and meta-gabbro sills (unit 1a, op. cit.).

In the east-central part of the area, near the northern limit of Eade's mapping, the metavolcanics are in contact with quartz-mica schist, probably derived from tuff (unit 2b, op. cit.).

The central part of the permit area is underlain by a one-mile wide and eight-mile long northeast-trending belt of Hurwitz Group metasediments comprising quartzite with minor dolomite and argillite (unit 8a, op. cit.) to the southeast, and dolomite with interbedded quartzite, argillite, greywacke or phyllite (unit 8b, op. cit.) to the northwest. Northwest-trending faults disrupt the metasedimentary lens whose northern contact with the volcanic unit is a northwesterly-dipping thrust fault. The dolomite also outcrops in the southeastern corner of the permit area in fault contact with granitic intrusions and the volcanic unit to the northwest. To the southeast, the two-mile wide dolomite band is in contact with metavolcanic schist, gneiss and amphibolite (unit 3, op. cit.)

The metavolcanic unit is intruded by lensoid bodies of granodiorite, granite and pegmatite (unit 7, op. cit.) and hornblende-biotite-quartz diorite (unit 7a, op. cit.)

Current Work and Results:

A photogeological study of the permit area was undertaken by Geophoto Services Limited in late 1969 to outline outcrop area and surface lineaments. In 1970 six zones of interest within the permit area were examined by mapping, prospecting, scintillometer surveys and rock sampling. Several gossans, quartz veins, pegmatite dykes and minor shear

zones were examined but no economic mineral concentrations were detected.

McCONNELL RIVER CLAIM GROUPS	Iron
Berton Gold Mines Limited,	65 H/1
901 - 736 Granville Street,	(61°10'30"N, 96°07'30"W)
Vancouver, B.C.	

References:

Wright (1967); Bell (1971)

Property:

35 EM, 31 JB and 36 ST claims 65 H/1

Location:

The claim groups were staked west of a widening of the McConnell River nine miles north-northeast of Ray Lake.

History:

The banks of the McConnell River were first staked in late 1958 as the TARA claims and explored by Northgate Exploration Limited. A dip needle survey performed over the claims at the time of staking was followed by magnetometer and electromagnetometer surveys and diamond drilling. Twelve holes totalling 707 feet were drilled, but only one vertical hole reached bedrock. It penetrated 129 feet of iron-formation. The EM, JB and ST claims were staked in September and October 1968 and acquired by Berton Gold Mines Limited in 1969. Twelve of the ST claims on the western edge of the staked area were allowed to lapse after the 1969 exploration program.

Description:

The staked area is mostly drift-covered, only a few outcrops of intercalated amphibolitic and quartzofeldspathic gneiss (unit Avn', Bell, 1971) were noted along its southern margins. North of the claim group, fine-grained recrystallized tonalite or granodiorite (unit 2', op. cit.) enclose a narrow elongate body of orthogneiss (unit 3b, op. cit.) derived from massive granodiorite.

Drilling in 1959 intersected northeasterly-striking and steeply-dipping iron-formation intercalated in biotite schist. The iron-formation consists of medium- to fine-

grained platy magnetite and specularite interlayered with recrystallized cherts. Samples averaged 40 per cent iron, 40 per cent silica, .05 per cent phosphorous, .04 per cent sulphur and .05 per cent titanium.

Current Work and Results:

Magnetic and gravity surveys along 2000 foot-long lines at 800 feet intervals were performed in 1969 by Seigel Associates Limited. A narrow zone of magnetic intensity reaching 100,000 gammas was traced along a length of 2.5 miles. It varies from 200 feet wide in the west to 600 feet wide in the eastern part of the claims group. Gravity readings over the eastern half of the grid outlined a positive anomaly of up to 2.0 milligals coincident with the magnetic anomaly.

HENIK LAKES CLAIM GROUP

Iso Mines Limited

65 H/5

4900 Toronto Dominion Centre,

(61°25'N, 97°53'W)

Toronto, Ontario.

Reference:

Eade (1964)

Property:

36 BABY, 36 DOLL, 36 GOGO, 36 HILL,

36 ICE, 36 JOS, 1 MAX, 36 PAT, 36 PEN,

36PIT, 36 RITA, 6 RITZ, 36 TOM, 36 TONY,

36 YE'YE' claims

65 H/5

Location:

The claims cover the area west and south of the south-west shore of Montgomery Lake.

History:

One thousand claims situated in the Padlei area and including the Iso Mines Limited claims were recorded by Dean Vaughn in February 1969.

Description:

The northeastern corner of the claim group is underlain by andesite, dacite, gabbro, quartz latite, rhyolite and agglomerate (unit 1, Eade 1964) which include and are overlain

to the southeast, by iron-formation (unit 3, op. cit.). To the south, along the eastern border of the claims, and to the west, the volcanics and iron-formation are in contact with quartzite, boulder conglomerate and minor siltstone (unit 7, op. cit.). In the southeastern corner of the Iso Mines Limited property the quartzite is in fault-contact with older greywacke, subgreywacke, phyllite, argillite and tuff (unit 2, op. cit.).

The oldest member of the Hurwitz Group within the area is orthoquartzite, with minor impure quartzite and pebble conglomerate (unit 8, op. cit.) which outcrops in an arcuate two-mile wide belt trending east then south in the central part of the claims. This unit is overlain to the west by a layer of slate, shale and siltstone with minor greywacke (unit 9, op. cit.) which encloses a gabbro sill (unit 13, op. cit.). Dolomite, argillite and siltstone (unit 10, op. cit.) overlie the slaty unit and are in turn overlain by impure quartzite, quartz-sericite schist and minor impure dolomite (unit 12, op. cit.).

The southwest-plunging syncline of Hurwitz Group metasediments is disrupted by two northwest-trending and one east-northeast-trending faults and a northwest-trending diabase dyke (unit 14, op. cit.).

Current Work and Results:

During the summer of 1969 geological mapping and scintillometer surveys were performed over the Iso Mines Limited property. Two outcrops of conglomerate were outlined in the unit underlying the orthoquartzite west of Montgomery Lake. Minor amounts of pyrite occur within the conglomerate but scintillometer readings over the outcrop did not detect anomalous radioactivity.

PADLEI CLAIM GROUP
Enex Mines Limited
1700, 10024 Jasper Avenue,
Edmonton, Alberta.

Uranium
65 H/15
(61°53'30"N, 96°40'W)

References:

Wright (1967); Bell (1970, 1971)

Property:

36 BLACK FOX, 36 HUNTER, 36 KIM,
36 RICK, 36 TEQUILLA, 36 WHITE FOX,
and 6 YENS claims 65 H/15

Location:

The claims cover the western and southern shore of Kinga Lake.

History:

In February 1969 an initial 216 claims were staked. The adjoining YENS claims were added in August 1969. One WHITE FOX and 16 TEQUILLA claims forming the southeastern corner of the group were allowed to lapse in 1970, along with 10 RICK claims in the southwestern corner and 12 HUNTER claims in the northwestern corner of the claim group. Falconbridge Nickel Mines Limited optioned the property from Enex Mines Limited in early 1970. The option was relinquished in early 1972.

Description:

Kinga Lake occupies the axial zone of a northeast-plunging syncline part of a syncline-anticline complex composed of Montgomery Lake and Hurwitz Group metasediments overlying undivided volcanic rocks (unit 1, Bell, 1970) of the Kaminak Group to the south and andesitic and basaltic flows, with associated gabbro sills and dykes (unit 1a, op. cit.) to the west and north. To the southeast, west and northeast, the metavolcanics are overlain unconformably by the Montgomery Lake pyritic quartz arenite, grit, siltstone, quartz-pebble conglomerate, minor subarkose and polymict conglomerate (unit 6, op. cit.). South of the mouth of the Maguse River and to the west and southeast polymict bouldery-to-pebbly conglomerate and pebbly mudstone, laminated siltstone and mudstone with minor arkose (unit 7, op. cit.) of the Padlei Formation, the basal member of the Hurwitz Group, unconformably

overlie the Montgomery Lake sediments. The Maguse Member of the Kinga Formation, an assemblage of coarse- to medium-grained quartz arenite, minor grit and oligomict conglomerate (unit 8a, op. cit.) underlies the rest of the area. Fine-grained quartz arenite (unit 8b, op. cit.) of the Whiterock Lake Member outcrops near the eastern edge of the area on the south shore of Kinga Lake. A number of west- to northwest-trending faults disrupt the western and southwestern edges of the syncline-anticline structure and bring the quartz arenite into contact with the metavolcanics.

Current Work and Results:

Geological and scintillometer surveys outlined two radioactive conglomerate exposures in 1969. One showing, south of Kinga Lake within the KIM claims (61°52'30"N, 96°39'45"W), consists of two 7,000-foot long and 15- to 20-foot thick horizons of rusty boulder conglomerate within Montgomery Lake sediments. Fragments of well-rounded to sub-angular quartzitic and granitic rock with a thin hematite coating occur within a radioactive pyritic matrix. Spectrometer studies indicate high uranium-to-thorium and uranium-to-potassium ratios. Uranium counts reach 648 per minute in areas of heavy sulphide stringers.

The second showing (61°55'N, 96°45'30"W) is west of Kinga Lake and was staked as the YENS claims. Less information was obtained in this area because of a lack of outcrops. Rusty boulder conglomerate was noted in a few outcrops and radioactivity was traced along 1,300 feet. In 1970 Falconbridge Nickel Mines Limited undertook detailed geological mapping and diamond drilling on the optioned claims. Eight holes, totalling 3633 feet, were drilled at 200-foot intervals on the KIM claim showing. Five holes intersected the conglomerate beds, one hole intersected a conglomerate band, but correlation with the radioactive unit is doubtful and two holes failed to intersect any conglomerate. Two conglomerate layers 5 to 15 feet thick were found in close proximity to the basement volcanics probably in a paleo-river channel. The conglomerates, interbedded with quartzite, were traced to a depth of 350 feet. All conglomerate intersections were assayed for uranium, thorium, gold and silver with nil-to-trace amounts of metal detected in all cases except for concentrations of up to .01 ounces per ton silver.

PROSPECTING PERMIT 176
Prudhoe Bay Oils Limited
108 - 627 6th Avenue Southwest,
Calgary 1, Alberta.

65 I/4
(62°07'N, 97°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 176

65 I/4

Location:

Prospecting permit 176 covers the area extending north from the centre of Imikula Lake and west from the centre of a large north-trending lake 12 miles to the north-northeast.

History:

Prudhoe Bay Oils Limited acquired the prospecting permit in 1969.

Description:

Two northeast-trending greenstone belts and one north-northeast-trending metasedimentary belt underlie the permit area. The main zone of intermediate-to-basic volcanic rocks and their metamorphic derivatives (unit 7, Wright, 1967) that underlies the northwest quarter of the area is part of a five- to twenty-mile wide belt extending for 100 miles from Sutcliffe Lake to east of Yathkyed Lake. A second metavolcanic belt, two to three miles wide and 16 miles long, lies southeast of the main belt in the south and central parts of the permit area. A five- to six-mile wide band of granite, granodiorite and related gneissic rocks (unit 13, op. cit.) separates the two belts. The granitic rocks also outcrop in the southeastern corner of the area. Greywacke, impure quartzite, slate, conglomerate, dolomite, limestone and minor schist (unit 10, op. cit.) of the Hurwitz Group outcrop west and north of Imikula Lake and southeast of the smaller greenstone belt.

Current Work and Results:

In early 1970 a photogeological and aeromagnetic study of the area, using published information, delineated five zones of interest which were then investigated by ground geological and geophysical surveys. A massive andesite

sub-unit and a bedded sub-unit consisting of interbedded andesite flows, tuff and greywacke, were recognized during the geological survey. A thin-bedded greyish to white quartzite is the only member of the Hurwitz Group within the area. Ground magnetometer survey outlined four anomalies along a northeast-trending zone. Two of the anomalies, one mile long and 300 to 500 feet wide, coincide with those shown on published aeromagnetic maps and are caused by disseminated magnetite in bedded greenstones. A weaker anomaly to the southwest is nearly coincident with a low on the aeromagnetic map that was interpreted as a fault. The fourth anomaly is located between the first two zones and is on the side of a weak high on the aeromagnetic map.

PROSPECTING PERMIT 223
Bluemount Minerals Limited
717 7th Avenue Southwest,
Calgary, Alberta.

65 J/7
(62°22'N, 98°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 223

65 J/7

Location:

The permit area extends north from the Kazan River for 16 miles and is centred 40 miles east-northeast of Angikuni Lake and 40 miles southwest of Yathkyed Lake.

History:

Bluemont Minerals Limited acquired the prospecting permit in early 1970.

Description:

Granite, granodiorite and allied rocks, in large part gneissic, (unit 13, Wright, 1967) of the basement complex underlie 80 per cent of the permit area. The granitic rocks are unconformably overlain in the northwest corner of the area by porphyritic igneous rocks (unit 20, op. cit.) as well as sandstone, pebbly sandstone, grit and arkose (unit 19, op. cit.) of the Dubawnt Group.

Current Work and Results:

During the summer of 1970 the permit area was subjected to extensive geological, geophysical and geochemical exploration programs. An airborne scintillometer survey was flown over the area along east-trending lines at half-mile intervals and the anomalous zones outlined were then examined by means of ground scintillometer surveys, prospecting and water sampling. The radon content of the water samples was determined as well as the copper and zinc content. The exploration programs performed failed to outline any concentrations of radioactive minerals or base metals.

CENTRAL DISTRICT OF KEEWATIN

TMT PROJECT	Uranium
Dynamic Group of Companies	55 M/11,12; 65 P/9,10
now Pan Ocean Oil Limited	(63°37'N, 96°15'W)
1050, 355 4th Avenue Southwest,	
Calgary, Alberta.	

References:

Donaldson (1965); Wright (1967)

Property:

10 CELENA, 10 GIN, 29 GORD, 4 LESLIE, 28 NOOK, 28 PAT, 15 PIC, 28 SUE and 28 TOM claims	55 M/11
6 ACE, 9 AXE, 4 CAB, 1 CAN, 4 CAR, 2 CAT, 6 CLEM, 4 DOG, 32 DON, 18 FAR, 36 FIRE, 36 FLO, 4 FORT, 3 FOX, 32 GIN, 22 HAT, 21 JET, 32 JOE, 32 KAY, 22 KEN, 21 LAURINE, 6 LIZ, 5 MAC, 15 MEL, 15 OWL, 4 PEAR, 7 PEG, 15 PIC, 3 PUFF, 36 RANDA, 23 RAT, 32 RIP, 10 SOB, 16 SOW, 32 TIM, 32 ZAB, and 12 ZAP claims and prospecting permit 208	55 M/12
Prospecting permit 212	65 P/9
Prospecting permit 213	65 P/10

Location:

The westerly-trending area covered by the claims and prospecting permits extends from west of Parker Lake to east of the mouth of the Kunwak River and encloses Thirty Mile Lake.

History:

Seven hundred and ninety claims were acquired by the New Continental Oil Company of Canada Limited in late 1969 to cover airborne radioactive anomalies detected that summer. Three prospecting permits were added to the company's holdings in April 1970. In the fall of 1970 all but 206 claims were allowed to lapse.

Description:

The project area covers part of the southern edge of a major belt of Dubawnt Group sediments and volcanics trending west-southwest from Baker Lake. Granite, granodiorite and gneiss (unit 13, Wright 1967) underlie the southern half of the prospecting permits area. A few small diorite and gabbro bodies (unit B, op. cit.) intrude the basement complex in the eastern part of the area.

Arkosic sandstone of the Kazan Formation (unit 3, Donaldson, 1965) unconformably overlying the basement outcrops in two- to five-mile bands at the western border and in the northeastern corner of the project area. The sandstones are overlain by the Christopher Island Formation porphyritic trachyte, andesite and latite flows which enclose minor rhyolite, agglomerate and tuffaceous sandstone (unit 4, Donaldson, 1965). Both the basement and Dubawnt Group rocks are intruded by a northwest-trending 400-foot wide diabase dyke (unit 23, Wright, 1967).

Current Work and Results:

A spectrometer survey flown in 1969 outlined a number of anomalies which were staked and briefly explored on the ground. In 1970 the Dubawnt Group basement complex contact was mapped and sampled. Ground geophysical and geological surveys were performed on 22 radioactive anomalies not explored in 1969. Only two of the anomalies investigated were due to significant concentrations of radioactive minerals. Small isolated patches of radioactivity were detected in granitic rocks west of Kazan Falls in the northwest part of prospecting permit 208. A second occurrence consists of minor amounts of uranium minerals in narrow discontinuous fractures at the contact between gneiss and an east-trending gabbro dyke.

Two gossan zones located in 1970 were subjected to magnetic and electromagnetic ground surveys but the results were discouraging as samples from the zones assayed less than .01 per cent nickel and .08 per cent copper.

Detailed ground scintillometer surveys, prospecting and 2,274 feet of diamond drilling in six holes explored a pitchblende showing (65°41'N, 95°46'W) located and staked in 1969. The showing consists of three mineralized north-trending fracture systems in a granitic gneiss complex enclosing numerous small gabbroic dykes or segregations. Pitchblende occurs as smears and massive veins within the fracture systems which are marked by intense to minor feldspathic and hematitic

alteration as well as disseminated pyrite and chalcopyrite. Radioactive and metallic mineral concentration is independent of rock type though the pyrite concentration increases slightly where the fractures intersect gabbroic rocks. The easternmost fracture zone, four miles southeast of the Kazan Falls and one half mile east of the Kazan River, varies in width from less than one foot to 12 feet over an exposed length of 1000 feet. Samples of core from the three holes drilled to test the zone at a depth of 200 feet assayed from .05 to 1.68 per cent uranium oxide over true widths of four feet. A similar fracture system, 600 feet to the west, has been traced for 600 feet and tested in two holes to a depth of 300 feet. The best intersections contained .07 per cent uranium oxide over true widths of four feet. Near the end of the season, an eight-inch wide pitchblende vein was discovered in a one-foot shear zone located between the two zones drilled. It was explored by pitting but not drilled.

PROSPECTING PERMIT 90 and CLAIM GROUPS

Esperanza Oil Limited

55 M/12,13; 56 D/4

J.L. Lee, Esq.,

(65°52'N, 95°45'W)

Suite D,

300 Petroleum Centre,

P.O. Box 6568,

San Antonio, Texas 78209

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 90

55 M/13

7 GOL and 4 LAB claims

55 M/12

27 HSM, 12 HUM and 2 OP claims

56 D/4

Location:

Prospecting permit 90, 32 miles south-southeast of the settlement of Baker Lake, extends south from near the shore of Baker Lake to just north of the Kazan Falls and lies mainly to the west of the Kazan River. The HSM, HUM and OP claims are adjacent to the northern border of the permit area. The GOL and LAB claims are along the west shore and within the eastern part of the lake formed by the widening of the Kazan River at the base of the Kazan Falls.

History:

Esperanza Oil Limited and Bakke Oil Limited acquired prospecting permit 90 in the spring of 1969. The permit is owned entirely by Esperanza Oil Limited who purchased Bakke Oil Limited's interest. The claims were staked during the 1969 aerial exploration program to cover the anomalies detected to the north and south of the permit area.

Description:

The prospecting permit and the claim groups are underlain entirely by the older members of the Dubawnt Group (Donaldson, 1965). The basal member of the group, the South Channel Formation, a conglomerate with minor sandstone interbeds (unit 2, op. cit.), outcrops in the southeastern part of the permit as the core of two gentle westerly-plunging anticlines. Conformably overlying the South Channel Formation and outcropping throughout the permit area is the 12,000-foot thick sequence of well-sorted and well-indurated feldspathic sandstone of the Kazan Formation (unit 3, op. cit.). Well-rounded pebbles and cobbles of this sandstone occur in the basal agglomerate beds of the Christopher Island Formation, a less than 200-foot thick sequence of porphyritic fine-grained-to-aphanitic andesite, latite and trachyte flows (unit 4, op. cit.) which caps mesa-like hills in the northern and western parts of the permit area. The youngest unit of the Dubawnt Group exposed on the permit is the Martell Syenite (unit 5, op. cit.) which forms a belt of domical hills in the northern half of the area.

The Dubawnt Group rock units are intruded by a series of massive northwest-trending, near-vertical diabase dykes (unit 8, op. cit.).

Current Work and Results:

Airborne radiometric, magnetic and INPUT electromagnetic surveys, flown by Questor Surveys Limited in July and August 1969, outlined a number of anomalies most of which were investigated by ground reconnaissance surveys in August 1969 and September 1970.

The electromagnetic survey outlined 13 zones with one to ten weakly conductive intercepts. Weak magnetic response (20 to 25 gammas above background) coincided with only two intercepts south of the permit area and these were staked as the GOL and LAB groups. The ground follow-up work revealed that all the anomalies investigated occur beneath tundra, glacial drift, lakes or rivers.

The spectrometer surveys outlined several single-line anomalies and six uranium zones with readings two to ten times background. The ground reconnaissance surveys indicated that the increased radioactivity coincides mainly with extensive outcrops of syenite, volcanics and sandstone.

In the northeast of the prospecting permit a medium-to-coarse-grained syenite outcrops in an area $\frac{1}{2}$ mile by $1\frac{1}{2}$ miles ($65^{\circ}58'25''\text{N}$, $95^{\circ}57'47''\text{W}$). Vertical fractures trending southeast contain $\frac{1}{2}$ -inch to eight-inch wide quartz veins up to 250 feet long which are more radioactive than the enclosing rock. Coarse-grained parts of the syenite body are also slightly more radioactive than the fine-grained sections.

In the southeast corner of the permit, at $63^{\circ}45'41''\text{N}$ and $95^{\circ}57'39''\text{W}$, several large hills rise abruptly 150 feet above the tundra. The radioactivity count rate over outcrops of syenite, rhyolite, dacite and andesite ranges from 100 to 600 counts per second, but a few narrow calcite-coated fractures produce rates as high as 4000 counts per second.

PROSPECTING PERMIT 92

Ensign Oils Limited (45%)

55 M/14

now Houston Oils Limited,

($63^{\circ}52'\text{N}$, $95^{\circ}15'\text{W}$)

950 Three Calgary Place,

355 - 4th Avenue Southwest,

Calgary, Alberta.

Fort Reliance Minerals Limited (45%)

915, 25 Adelaide Street East,

Toronto, Ontario.

Citizens Pipeline Limited (10%)

890, 550 - 6th Avenue Southwest,

Calgary, Alberta.

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 92

55 M/14

Location:

The prospecting permit, centred 40 miles southeast of the settlement of Baker Lake, extends north from Bissett Lake to the head of the Clear Water River.

History:

The prospecting permit was issued to Fort Reliance Minerals Limited and Ensign Oils Limited in early 1969.

Description:

The prospecting permit is underlain exclusively by members of the Dubawnt Group (Donaldson, 1965). The main rock type within the permit area is the fine-to-medium-grained feldspathic sandstone of the Kazan Formation (unit 3, op. cit.). Two outcrops of the underlying South Channel Formation (unit 2, op. cit.), the basal conglomerate member of the Dubawnt Group, were noted at the southern boundary of the permit area during the detailed mapping program in 1969. The medium-grained Martell Syenite (unit 5, op. cit.), also a member of the group, intrudes the sandstone in the eastern and northern parts of the permit area and forms a belt of domical hills.

Current Work and Results:

During the summer of 1969 Geoterrex Limited performed airborne scintillometer and magnetometer surveys over the permit area. A helicopter-supported geological survey was also undertaken. The ground examination of the radiometric and magnetic anomalies was completed during the 1970 field season.

Of the 42 radiometric and magnetic anomalies examined, 40 correspond to outcropping syenite bodies. The other two anomalies, adjacent to the conglomerate-basement contact in the southeastern part of the area, are covered by overburden and were not detected during the 1970 ground survey.

PROSPECTING PERMIT 94	
Canadian Gridoil Limited	55 M/15
now Ashland Oil Canada Limited	(63°52'N, 94°45'W)
1800, 639-5th Avenue Southwest,	
Calgary, Alberta.	

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 94	55 M/15
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Location:

Prospecting permit 94, 50 miles southeast of the settlement of Baker Lake, extends west from Andrews Lake to within nine miles of Martell Lake.

History:

The permit was acquired by Canadian Gridoil Limited in early 1969. The 1969 and 1970 exploration programs were carried out by the Aquitaine Company of Canada Limited under agreement with Canadian Gridoil Limited.

Description:

The Dubawnt Group basement complex contact trends southwesterly across the permit area. The eastern part of the permit is underlain by schist, gneiss and granulite (unit 12, Wright 1967) with two ellipsoidal diorite and gabbro intrusions (unit B, op. cit.), two miles by one mile and four miles by three miles, at the metasediment Dubawnt Group contact. The southern part of the permit contains granite, granodiorite and allied rocks, in part gneissic and impure with many bands of assimilated schist, gneiss and amphibolite (unit 13, op. cit.).

In contact with the basement complex is the South Channel Formation conglomerate (unit 2, Donaldson, 1965), the basal member of the Dubawnt Group. Conformably overlying this formation is the fine- to medium-grained feldspathic sandstone of the Kazan Formation (unit 3, op. cit.), in part capped by andesite, latite and trachyte flows and agglomerates of the Christopher Island Formation (unit 4, op. cit.) and intruded by stock-like bodies of Martell syenite (unit 5, op. cit.). The massive syenite and aphanitic volcanic flows

occur in the northwestern part of the permit area, outcropping over roughly circular areas from one to three miles in diameter.

Current Work and Results:

Subsequent to a photogeological study in early 1969 an airborne radiometric and magnetic survey was flown by Geoterrex Limited along east-trending lines at quarter-mile spacing. A crew of three geologists and three prospectors compiled the results as they became available and checked the anomalies on the ground. Twenty-five geochemical soil samples were collected and analyzed for lead, copper, silver and uranium oxide.

The exploration program outlined three zones of interest. In the northwest corner of the permit area, a small andesite dyke (63°56'N, 94°52'W) intrudes the arkosic sandstone of the Kazan Formation. Two small erratic rock fragments, similar to the sandstone at the contact with the andesite, were found on an outcrop and contained .07 per cent lead, .14 per cent copper, .02 per cent silver and .4 per cent uranium oxide. Geochemical soil samples collected in the area had anomalous lead and copper content.

In the eastern part of the permit, just west of Andrews Lake, two radiometric anomalies (63°52'N, 94°37'W) correspond to disseminated pyrite and pyrrhotite, a lead geochemical anomaly and a magnetic anomaly in remnants of a highly metamorphosed volcanic sequence. Similar volcanic remnants with weaker magnetic trends are present in the area. Thirdly, a small zone (63°57'N, 94°38'W) to the north of Andrews Lake contains radioactive anomalies which could not be explained.

In 1970 airborne electromagnetic and magnetic surveys covering 165.5 line-miles and a reconnaissance geochemical soil survey of 92 samples were executed over those parts of the permit area retained after the 1969 work. The airborne geophysical surveys located two conducting zones and seven single line anomalies, several of them with coincident magnetic response. The main conductor trends south-southwest from Andrews Lake for four miles and coincides with the metasediments-metavolcanics and conglomerate contact. The zone consists of weak-to-strong conductor intersections with poor-to-moderate conductivity. Two isolated single-line anomalies near the border of the larger diorite intrusions, northeast of the main conductor, show strong response and good conductivity together with magnetic correlation. No definite pattern evolved from the soil sampling but high uranium, copper, lead and zinc content were noted in a number of samples.

BL PROJECT	Uranium Molybdenum, Copper
Dynamic Group of Companies	55 M/16; 56 D/2,3,6,7,8
now Pan Ocean Oil Limited,	(64°15'N, 94°45'W)
1050, 355-4th Avenue Southwest,	
Calgary, Alberta.	

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 98	55 M/16
Prospecting permit 109	56 D/2
Prospecting permit 209	56 D/6
Prospecting permit 210	56 D/7
Prospecting permit 211	56 D/8
30 EDNA, 15 JET and 30 MARY claims	56 D/3

Location:

The prospecting permit and claims are along the eastern and northeastern shore of Baker Lake 50 miles east of the settlement of Baker Lake. Prospecting permit 109 extends west from eight miles west of the east shore of Baker Lake. It covers part of the northeastern and southeastern shores of the lake and the western half of Christopher Island. Prospecting permit 98 is located to the southeast of this permit while the prospecting permits 209 to 211 form an east-trending belt to the north. The claim groups occur along the shore of Baker Lake to the west of prospecting permit 109.

History:

The prospecting permits 98 and 109 were acquired by the New Continental Oil Company of Canada Limited and Marwood Petroleum Limited in early 1969 to cover radiometric anomalies detected during a survey flown in 1968. The other three permits and the claim groups were acquired by the New Continental Oil Company of Canada Limited in 1970 subsequent to a second airborne survey flown in 1969. Prospecting permits 98 and 209 to 211 were relinquished in 1971.

Description:

The BL Project studies covered the easternmost exposures of the Dubawnt Group sedimentary and volcanic sequence as well as the basement complex to the north and

southeast. The basement complex, underlying prospecting permit 98, 209, 211 and the northeastern part of permit 109, consists of gneiss, schist and granulite (unit 12, Wright, 1967). This unit is intruded by large masses of fresh granite, granodiorite and gneissic rocks (unit 13, op. cit.), diorite and gabbro (unit B, op. cit.) and anorthosite (unit C, op. cit.). Other intrusions of granitic composition occur as dykes across and concordant to the gneissosity and are thought to be the source of the Christopher Island Formation porphyritic flows.

The Dubawnt Group forms a 3,000-square-mile blanket over the basement complex, extending to the south and west from just east of prospecting permit 109. The basal South Channel Formation, a conglomerate with minor sandstone interbeds (unit 2, Donaldson, 1965) outcrops along the eastern shore of Baker Lake in the northwestern part of prospecting permit 98 and is overlain conformably by the fine-to-medium-grained crossbedded feldspathic sandstone of the Kazan Formation (unit 3, op. cit.) in the southeastern part of prospecting permit 109. The sandstones are capped by the porphyritic andesite, latite and trachyte flows and the agglomerates of the Christopher Island Formation (unit 4, op. cit.). These three units are intruded by laccoliths of the medium-grained massive Martell syenite (unit 5, op. cit.) and overlain unconformably, in the northeastern part of prospecting permit 109, by conglomerate, possibly of the Thelon Formation (unit 7, op. cit.).

Current Work and Results:

The 1969 exploration consisted of ground follow-up work on 15 anomalies detected during the 1968 and 1969 airborne gamma-ray spectrometer surveys over prospecting permits 98 and 109. The program involved prospecting, reconnaissance and detailed spectrometer surveying, geological mapping and, where warranted, trenching, sampling and diamond drilling of the mineral occurrences. Four holes totalling 134.7 feet were drilled. Seven of the radiometric anomalies were too limited in extent to be of interest or could not be detected during the ground surveys.

In 1970 ground follow-up work was carried out on a total of 95 radiometric anomalies detected in 1969 within the area of prospecting permits 209 to 211 and the claim groups. Detailed geophysical surveying, geological mapping, geochemical soil sampling and diamond drilling were carried out on the eight anomalies already explored in 1969 and a ninth anomaly discovered in 1970. Of the 104 anomalies studied, only four are of interest.

Two of the four anomalies occur over silicified and intensely jointed and fractured Kazan Formation sandstone on Christopher Island. The main zone (64°04'35"N, 94°32'53"W), near the centre of the island, consists of uraninite with traces of pyrite and chalcopyrite in calcite veins, 1/8 to 2 inches wide, within northeast and northwest-trending steeply-dipping to vertical fractures. The uraninite also occurs as pore space filling in the sandstone. A major fault trends northwest 600 feet northeast of the uraninite occurrence. The 1969 and 1970 diamond drilling, totalling 3,259 feet in 19 holes, traced a mineralized sedimentary horizon 200 feet by 150 feet on surface to a depth of 50 to 80 feet. The average grade within the zone is .04 per cent uranium oxide, the best intersections grading .056 per cent uranium oxide and .061 per cent molybdenum over 52 feet, and .049 per cent uranium oxide and .092 per cent molybdenum over 50 feet.

The second mineralized zone (64°06'21"N, 94°36'57"W), 1,500 feet to the northwest, consists of uraninite-pyrite-bornite veinlets in fractures in the Kazan Formation sandstone, 300 feet south of the contact with Christopher Island Formation volcanics. Sampling of the veinlet zone indicated grades of .04 per cent uranium oxide and .11 per cent copper over 12 feet. Two diamond drill holes totalling 639 feet did not intersect any uranium veinlets at depth.

The third mineralized zone (64°06'42"N, 94°37'12"W) occurs in fractured Christopher Island Formation volcanics at the northwestern tip of Christopher Island. Faulting occurs on either side of the mineralized zone. Both the faults and intervening pitchblende and bornite-filled fractures trend northeast and dip steeply to vertically. A uranium-rich zone, grading up to .35 per cent uranium oxide over 14 feet on the surface, is centred 100 feet northwest of a uranium-copper zone which grades up to .36 per cent uranium oxide and .20 per cent copper over eight feet.

The fourth mineralized zone (64°10'11"N, 94°33'25"W) occurs on the mainland six miles north of Christopher Island within the volcanic breccia core of a 1,200-foot long and 40-foot wide felsite dyke. The felsite intruded the basement gneiss along a fracture striking 335 degrees and dipping 80 degrees northeast. The fine-grained uraninite and pitchblende occur in calcite veinlets, 1 to 20 millimeters wide and trending at 30 to 45 degrees to the core axis, and as dissemination in the breccia fragments. The pipe-shaped occurrence, 150 feet long and 30 feet wide on surface, plunges at 25 degrees on a due north bearing. The 1969 and 1970 drilling of 2,310.7 feet indicated the mineralized breccia body extends for at

least 500 feet down the plunge. Individual intersections within the occurrence range from .05 to 1.08 per cent uranium and nil to .144 per cent molybdenum.

DALY BAY PROJECT

Husky Oil Limited
815 - 6th Street Southwest,
Calgary, Alberta

55 O/16, P/13
(63°52'N, 90°00'W)

References:

Heywood (1967); Wright (1967); Gordon (1972)

Property:

Prospecting permit 203	55 O/16
Prospecting permit 204	55 P/13
60 JIM claims	55 O/16
60 ROB claims	55 P/13

Location:

The prospecting permits and claims cover an area on the northwest shore of Hudson's Bay extending north from Whitney Inlet to the Connery River and east from a north-trending series of interconnected elongate lakes emptying into the Connery River to the southern tip of a narrow peninsula trending south-southeast into Daly Bay.

History:

The claims, staked by J. Gorski, and the prospecting permit were acquired by Husky Oil Limited in early 1970.

Description:

Wright (1967) shows the area of prospecting permit 203 and the JIM claims as underlain by granite, granodiorite and gneissic rocks of the basement complex (unit 13). The granitic complex north of the permit was sub-divided by Heywood (1967) into layered gneiss (unit 9a), paragneiss and schist (unit 9b), granitic gneiss (unit 10) and migmatite (unit 11).

A detailed petrographic study of the area northeast of prospecting permit 203 by Gordon (1972) indicates that the western part of prospecting permit 204 and the ROB claims

are underlain by hornblende-biotite gneiss while the peninsula jutting into Daly Bay consists of anorthosite. This latter unit is part of the Daly Bay Complex centred northeast of the prospecting permit area.

Current Work and Results:

In 1970 a gamma-ray spectrometer survey by Questor Survey Limited covered 2,789 line-miles over the prospecting permits and claims. Radiometric anomalies detected during the survey were prospected by ground scintillometer surveys. All the anomalies investigated are related to minor concentrations of radioactive minerals along small fractures in pegmatites.

PROSPECTING PERMIT 106

Canadian Export Gas & Oil Limited
736 - 8th Avenue Southwest,
Calgary, Alberta.

56 D/1
(64°07'N, 94°15'W)

Canadian Homestead Oils Limited
630 - 6th Avenue Southwest,
Calgary, Alberta.

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 106

56 D/1

Location:

The prospecting permit area, 56 miles east-southeast of the settlement of Baker Lake, includes the eastern half of Christopher Island, the northwestern part of the Bowell Islands and the mainland northeast of Baker Lake.

History:

Prospecting permit 106 was acquired by Canadian Export Gas & Oil Limited and Canadian Homestead Oils Limited in early 1969.

Description:

The prospecting permit covers the contact of the basement complex to the north and east with the Dubawnt

Group sedimentary and volcanic units underlying the islands at the east end of Baker Lake.

Three main lithological units form the basement complex within the permit area. Gneiss, schist, amphibolite and granulite derived from older sedimentary and volcanic rocks (unit 12, Wright 1967) occur in easterly-trending belts in the northern half and southeastern corner of the area. Younger intrusive granite (unit 13, op. cit.) outcrops extensively along the northern border of the permit area. A smaller granitic intrusion lies east of Baker Lake between the two belts of gneissic material. A two-mile wide and eight-mile long anorthosite body outcrops along the northeastern shore of Baker Lake between the gneissic band and the granitic intrusion.

The basal unit of the Dubawnt Group, the South Channel Formation conglomerate (unit 2, Donaldson, 1965), outcrops in contact with the basement gneiss along the western edge of the Howell Islands. The other islands and the eastern part of Christopher Island are underlain by sandstone (unit 3, op. cit.) of the Kazan Formation and the overlying volcanic flows and agglomerates (unit 4, op. cit.) of the Christopher Island Formation. The trachyte, andesite and latite flows occur as mesa-like caps on the sandstone. A small $\frac{1}{4}$ -mile wide and one-mile long area on the north shore of Baker Lake is underlain by volcanic flows in contact with the anorthosite.

Current Work and Results:

The 1969 exploration program performed by Geophoto Services Ltd. involved a photogeological study of the permit area and an airborne gamma-ray spectrometer survey. Eleven areas of interest were outlined during the airborne survey; four are underlain by members of the Dubawnt Group, four by the granitic complex in the northern part of the permit area, two by gneissic rocks near the eastern and western border of the permit area and one is within the anorthosite body at the northeast corner of Baker Lake.

In 1970 the radioactive zones were investigated during a scintillometer prospecting program. The areas of higher than normal radioactivity are due to the mass effect of high hills and accumulations of frost-heaved boulders.

WEST KETYET RIVER PROJECT
Aquitaine Company of Canada Limited
2000, 540 - 5th Avenue Southwest,
Calgary, Alberta.

Molybdenum, Copper, Lead,
Zinc
56 D/11,13
(64°36'45"N, 95°26'30"W)

Reference:

Wright (1967)

Property:

20 DUB, 30 MOL, 6 PYR and 4 RYP claims 56 D/11
10 TER claims 56 D/13

Location:

The main group of claims is centred ten miles south of the southeastern shore of Tehek Lake and ten miles west of the Ketyet River. The TER claims are nine miles northeast of Whitehills Lake and five miles south of Tehek Lake.

History:

In 1969, while Aquitaine Company of Canada Limited was involved in a large exploration program north of Baker Lake, some molybdenite showings were found south of Tehek Lake and staked as the DUB, MOL, PYR and RYP claims. The TER claims were staked at that time to cover an iron oxide zone and then allowed to lapse in 1970.

Description:

The main claim group trends northeast across a tongue of undifferentiated Hurwitz Group sedimentary rocks (unit 11, Wright 1967) which extends north from the central portion of a five- to eight-mile wide belt of similar material trending northeast from the southern part of Whitehills Lake to the Quoich River. The TER claims cover the eastern contact of the Hurwitz Group rocks with intrusive granitic rocks (unit 13, op. cit.) of the basement complex. Mica schist, generally feldspathized, quartzose schist and amphibole are the main rock types outcropping within the southwestern part of the claim group. Granitic sills and veins predominate within the northwesternmost quarter of the claim group.

Current Work and Results:

Exploration in 1970 involved a geochemical reconnaissance survey, airborne electromagnetometer and magnetometer

surveys and an induced polarization survey. A total of 195.25 line-miles was flown along lines trending northeast and northwest at 1,320-foot intervals. Five conducting zones trending northeast for 2.5 miles and one zone trending northwest were outlined in the north-central and southern part of the claim group. A number of intercepts within the zones display good conductivity and magnetic correlation. The ground geophysical survey in the northern part of the area involved 29 line-miles of reconnaissance and 2.86 line-miles of detail work. Three main arcuate zones of anomalous chargeability values trend south from the northeastern border of the claims.

Geochemical reconnaissance work and prospecting outlined small concentrations of galena, sphalerite, and chalcopyrite along with the molybdenite showings.

PROSPECTING PERMIT 107

Canadian Export Gas & Oil Limited
736 - 8th Avenue Southwest,
Calgary, Alberta.

56 D/12
(64°37'N, 95°45'W)

Canadian Homestead Oils Limited
630 - 6th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 107

56 D/12

Location:

Prospecting permit 107, 22 miles north-northeast of Baker Lake and south of Tehek Lake, extends east for 15 miles from the centre of Whitehills Lake.

History:

The prospecting permit was acquired by Canadian Export Gas & Oil Limited and Canadian Homestead Oils Limited in early 1969.

Description:

The permit area is underlain by parts of a 15-mile wide greenstone belt in intrusive granite and sedimentary

units of the Hurwitz Group. The northeast-trending belt of intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967) outcrops in the northwest corner of the permit area. Two narrow arcuate greenstone belts trend east-southeast and west-northwest to the southeast of the main greenstone belt.

The greenstones are in contact with white quartzite (unit 9, op. cit.) and greywacke with impure quartzite, slate, phyllite, conglomerate, dolomite and limestone (unit 10, op. cit.) of the Hurwitz Group. The white quartzite unit outcrops to the south of the greenstones and east of a narrow north-trending band of greywacke along the eastern edge of the area underlain by greenstone. A band of greywacke with a white quartzite core trends east across the centre of the permit area. Undifferentiated Hurwitz Group sedimentary rocks (unit 11, op. cit.) outcrop in the southeast and southwest corners of the permit area and as a northeast-trending band to the north.

The granitic intrusions (unit 13, op. cit.) pre-dominate in the southwestern, central and northeastern parts of the permit area. Two small intrusions of diorite and gabbro (unit B, op. cit.) outcrop within the granitic complex in the central part of the permit area.

Current Work and Results:

Geophoto Services Limited prepared a photogeological study of the area and performed airborne gamma-ray spectrometer and magnetometer surveys over the permit area in 1969. Six zones of interest were outlined, during the spectrometer survey, within the granitic complex in the northern part of the permit area.

A scintillometer prospecting program performed in 1970 indicated that areas of higher than normal radioactivity correspond to high hills and accumulations of frost-heaved boulders.

PROSPECTING PERMIT 95

Canadian Gridoil Limited

65 M/4

now Ashland Oil Canada Limited

(63°17'N, 103°45'W)

1800, 639 - 5th Avenue Southwest,
Calgary, Alberta.

References:

Wright (1967); Donaldson (1969)

Property:

Prospecting permit 95

65 M/4

Location:

The permit to the south of an east-flowing tributary of Clarke River extends east from a point 17 miles east of Eyeberry Lake to a point 40 miles west of Dubawnt Lake.

History:

The prospecting permit was acquired by Canadian Gridoil Limited in the spring of 1969 and relinquished in 1970.

Description:

The bedrock in the permit area is almost completely covered by a mantle of glacial deposits in the form of lengthy eskers and numerous drumlins and drumlinoid ridges. All but one of the outcrops within the area are composed of sandstone with minor mudstone and siltstone (unit 6c, Donaldson, 1969) of the Thelon Formation, a member of the Dubawnt Group. The sandstone is generally flat-lying and is cut by two sets of joints trending east-northeast and north-northwest. One outcrop on the north side of a west-trending esker consists of younger basalt (unit 7a, op. cit.) of the Dubawnt Group.

Current Work and Results:

Geophoto Services Limited prepared a photogeological study of the permit area and carried out airborne gamma-ray spectrometer and magnetometer surveys in the summer of 1969. The highest contour value on the uranium isorad map prepared subsequent to the survey is 20 counts per two seconds. The higher readings are all located along the eastern border of the permit, an area with relatively numerous rock outcrops. The magnetic map indicated two anomalous areas corresponding to zones of known rock outcrops in the northwest and southwest corners of the permit area.

PROSPECTING PERMIT 224
Bluemount Minerals Limited
717, 7th Avenue Southwest,
Calgary, Alberta.

65 P/11
(63°37'N, 97°15'W)

Reference:

Wright (1967)

Property:

Prospecting permit 224

65 P/11

Location:

The area covered by prospecting permit 224 extends from north of Forde Lake to the southeastern tip of Princess Mary Lake and west from the junction of the Kunwak and Kazan Rivers.

History:

Bluemount Minerals Limited applied for and was granted the prospecting permit in early 1970.

Description:

South of a major bend in the Kazan River, the permit area is underlain by granite, granodiorite and allied rocks in large part gneissic (unit 13, Wright, 1967) of the basement complex. A small area, one mile in diameter, on the south shore of the river, consists of intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, op. cit.).

North of the river outcrops a two-mile wide zone of Dubawnt Group sandstone, pebbly sandstone, grit and arkose (unit 19, op. cit.). Porphyritic igneous rocks (unit 20, op. cit.) overlie this sedimentary unit and outcrop throughout the northern half and along the western border of the permit area.

Current Work and Results:

The 1970 exploration program involved an airborne scintillometer survey of the permit area, ground scintillometer surveys, geological mapping at a scale of one inch to 5,000 feet, and geochemical water sampling. The water samples were analyzed for radon, copper and zinc. A number of high

scintillometer readings and anomalous radon concentrations were detected to the southwest of the central part of the permit area.

PROSPECTING PERMIT 103

Republic Resources Limited
660, 330 - 5th Avenue Southwest,
Calgary 1, Alberta.

65 P/13

(63°52'N, 97°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 103

65 P/13

Location:

The prospecting permit, 60 miles southwest of the settlement of Baker Lake, covers the southwestern shore of Princess Mary Lake and most of the islands in the lake.

History:

The prospecting permit was acquired by Republic Resources Limited in 1969.

Description:

All but the northwest corner of the permit area is underlain by feldspar porphyry (unit 20, Wright, 1967) of the Dubawnt Group. The underlying feldspathic sandstone (unit 19, op. cit.) outcrops on a small peninsula opposite the largest island on Princess Mary Lake. The southwestern part of this island is composed of the conglomerate (unit 21, op. cit.) which overlies the porphyritic volcanics. During the 1970 field program, the conglomerate unit was divided into two sub-units by the exploration geologist. A lower volcanic conglomerate with porphyritic volcanic inclusions and an upper quartz-pebble conglomerate was recognized. Epidotized impure granite of the basement complex outcrops on the mainland west of the island.

Current Work and Results:

A photogeological study of the permit area in 1969 and early 1970 served as the basis for a geological and geo-

physical reconnaissance and prospecting program performed during the summer of 1970. The only radiometric anomaly detected during the 1970 program corresponds to a north-northwest trending fracture in the volcanic conglomerate. A sample collected in the area of highest scintillometer reading did not show significant uranium content.

PROSPECTING PERMITS 160,161 and 162
Aquitaine Company of Canada Limited
2000, 540-5th Avenue Southwest
Calgary, Alberta.

65 P/14,15; 66 A/3
(64°00'N, 97°00'W)

References:

Donaldson (1965, 1966); Wright (1967)

Property:

Prospecting permit 160	65 P/14
Prospecting permit 161	65 P/15
Prospecting permit 162	66 A/3

Location:

The three prospecting permits, 50 miles west of the settlement of Baker Lake, extend east from the shore of Princess Mary Lake to the east shore of Pitz Lake.

History:

Aquitaine Company of Canada Limited acquired the three permits in 1969 and relinquished prospecting permit 162 in early 1970.

Description:

Feldspar porphyry and agglomerate (unit 6, Donaldson, 1965 and unit 11, Donaldson, 1966) of the Pitz Formation, a member of the Dubawnt Group, are the predominant rocks outcropping within the permit areas. The underlying Kazan Formation arkosic sandstone (unit 3, Donaldson, 1965 and unit 9, Donaldson, 1966) outcrops in the northeastern corner of prospecting permit 160 northwest of Pitz Lake. The feldspar porphyry unit is overlain by conglomerate and sandstone of the Thelon Formation (unit 7, Donaldson, 1965 and unit 13, Donaldson, 1966) exposed west of Pitz Lake and along a two- to three-mile wide zone at the Dubawnt Group basement complex contact northeast of Princess Mary Lake.

The fault-contact between the Dubawnt Group and the gneissic granite (unit 5, Donaldson 1966) of the basement complex trends east-northeast across prospecting permit 162. Intermediate-to-basic volcanic rocks (unit 2, op. cit.) and Hurwitz Group quartzite (unit 8, op. cit.) outcrop within the basement granite north of the contact in the northwestern corner of the area.

Northwest-trending diabase dykes (unit 8, Donaldson, 1965, unit 14, Donaldson, 1966) intrude both the basement complex and the Dubawnt Group units west of Pitz Lake.

Current Work and Results:

In 1969 a photogeological study, airborne radiometric and magnetic surveys and ground examination of airborne anomalies were performed. Scintillometer surveys, prospecting and rock and soil sampling comprised the ground follow-up program. Most of the airborne radiometric anomalies correspond to lake shores and rock outcrops within areas underlain by glacial drift. The geochemical survey outlined four anomalies. Anomalous concentrations of copper were detected in soil samples from three different areas in the north part of prospecting permit 160. Soil samples with anomalous copper, lead and zinc concentrations were collected in the southern part of prospecting permit 161.

In 1970 airborne electromagnetometer and magnetometer surveys were flown over those areas where geochemical anomalies had been detected in 1969. Geochemical soil sampling was also performed. No geophysical anomalies were detected on prospecting permit 160 and only two anomalies were outlined within prospecting permit 161.

PROSPECTING PERMIT 172

Chancellor Consultants Limited
Suite 572, Calgary Place No. 1,
Calgary 2, Alberta.

65 P/16
(63°52'N, 96°15'W)

References:

Donaldson (1965); Wright (1967)

Property:

Prospecting permit 172

65 P/16

Location:

The prospecting permit extends from the east shore of Pitz Lake to within 15 miles of the Kazan River.

History:

Prospecting permit 172 was acquired by Chancellor Consultants in early 1969 and relinquished in 1971.

Description:

Outcrop within the area is restricted to a four- to eight-mile wide discontinuous southeast trend between Pitz Lake and the southeastern corner of the permit area. Most of the outcrops within this trend are trachyte, andesite and latite flows with minor rhyolite (unit 4, Donaldson, 1965) of the Dubawnt Group Christopher Island Formation. Sandstone, pebbly sandstone and minor conglomerate (unit 7, op. cit.) of the Thelon Formation, a second member of the group, unconformably overlies the volcanics and outcrop in the northwestern quarter of the trend near Pitz Lake.

Current Work and Results:

Work in 1970 involved a photogeological study of the permit area and ground reconnaissance geochemical, geophysical and geological surveys over a 10.2-mile long by 3-mile wide block in the east-central part of the area. The ground survey consisted of geological mapping and sampling of the outcrops, spectrometer and magnetometer surveys along north-trending lines at half-mile intervals, and the collection and analysis of 34 soil samples to determine their copper, lead and zinc content. Base metal or uranium concentrations were not detected by the ground surveys.

PROSPECTING PERMIT 163 to 171

Aquitaine Company of Canada Limited
2000, 540 - 5th Avenue Southwest,
Calgary, Alberta.

66 A; 66 B; 66 G
(64°37'N, 98°15'W)

References:

Donaldson (1966, 1969); Wright (1967)

Property:

Prospecting permit 163	66 A/11
Prospecting permit 164	66 A/12
Prospecting permit 165	66 B/6
Prospecting permit 166	66 B/7
Prospecting permit 167	66 B/8
Prospecting permit 168	66 B/9
Prospecting permit 169	66 B/10
Prospecting permit 170	66 B/16
Prospecting permit 171	66 G/3

Location:

Prospecting permits 163 to 170 cover the southern and northeastern shores of Aberdeen Lake and the southern shore of Schultz Lake. Prospecting permit 171 covers the area southeast of Sand Lake, 30 miles to the north-northeast.

History:

Aquitaine Company of Canada Limited acquired the nine prospecting permits in early 1969 and relinquished prospecting permits 165, 166, and 168 to 171 in 1970.

Description:

The arcuate contact between the Dubawnt Group and the basement complex trends northeast across the southeastern permits and northwest across the southwestern permits. Rocks south of the contact are granite and granitoid gneiss (unit 5, Donaldson, 1966 and unit 1, Donaldson, 1969). Southeast of Schultz Lake, Hurwitz Group orthoquartzite (unit 8, Donaldson, 1966) encloses inliers of schist, phyllite, greywacke and argillite (unit 1, op. cit.). Northeast-trending zones of migmatite, fine-grained gneiss and schist (unit 4, op. cit.) outcrop north and west of the orthoquartzite at the Dubawnt Group basement complex contact.

The main unit of the Dubawnt Group within the permit areas is the clastic Thelon Formation (unit 13, Donaldson, 1966, and unit 6, Donaldson, 1969) which consists of three sub-units. A basal conglomerate outcrops to the southeast in contact with the basement complex while conglomerate of similar composition occurs as channels and sheets at stratigraphically higher levels in medium-grained well-indurated pebbly sandstone and sandstone. The pebbly sandstone contains more than 10 per cent quartzite and vein quartz pebbles. The Thelon Formation is underlain by the feldspar porphyry of the Pitz Formation (unit 5, Donaldson, 1969) which outcrops at the Dubawnt Group basement complex contact in the southwestern part of the area. Where the volcanic formation is absent, the contact zone is marked by the presence of silicified regolith (unit 12, Donaldson, 1966) underlying the Thelon Formation conglomerate.

Outliers of the Pitz and Thelon Formation units occur south of the main contact while faulted blocks of basement rock occur to the north. Two directions of faulting are apparent on the eastern and northeastern permits. A northwest- to north-northwest-trending set of faults control the distribution and trend of numerous diabase dykes; the largest dyke is 400 feet wide and can be traced for 150 miles across the basement complex and Dubawnt Group units. The second set of faults strikes east to northeast and locally marks the Dubawnt Group basement complex contact.

Current Work and Results:

The radiometric anomalies detected by the 1969 airborne radiometric and magnetic survey were investigated that year by ground scintillometer surveys, prospecting and rock and soil geochemistry. Most of the radiometric anomalies were attributed to thin layers of fine conglomerate interbedded with coarse conglomerate. The geochemical survey outlined a copper-zinc anomaly over gossans in the southeastern corner of prospecting permit 163 and a copper anomaly over sericitic schist and quartzite with disseminated pyrite and pyrrhotite in the northeastern corner of the permit.

Airborne electromagnetic and magnetic surveys flown in 1970 over parts of prospecting permits 163 and 167, where the 1969 survey had outlined a high positive linear magnetic anomaly trending north-northeast, outlined only three electromagnetic anomalies on prospecting permit 163.

PROSPECTING PERMIT 173

Silver Arrow Explorations Limited 66 A/1
now Stampede International Resources Ltd., (64°07'N, 96°15'W)
1760 - 777 Hornby Street,
Vancouver, B.C.

References:

Donaldson (1965, 1966); Wright (1967)

Property:

Prospecting permit 173 66 A/1

Location:

Prospecting permit 173 extends from the southwest shore of Baker Lake to the northeast shore of Pitz Lake.

History:

Silver Arrow Explorations Limited acquired the prospecting permit in early 1969 and relinquished it in 1971.

Description:

Only five restricted zones of the drift-covered permit area contain outcrops. Three of these zones are underlain by sandstone (unit 13c, Donaldson, 1966) of the Dubawnt Group Thelon Formation. In the northwestern part of the permit area, the Thelon Formation sandstone is in contact, to the south and east, with the porphyries, agglomerates and minor interflow sedimentary rocks (unit 11, op. cit.) of the underlying Pitz Formation. To the northwest, the sandstone and volcanics outcrop abuts against a fault. An outcrop in the northwest corner of the permit area consists of granite, quartz monzonite, granodiorite and minor syenite and syenodiorite (unit 5, op. cit.) of the basement complex.

Current Work and Results:

Following a photogeological study performed in July 1970, a seven-man crew investigated the northwestern and east-central parts of the permit area by reconnaissance and detailed geological mapping, magnetometer and spectrometer surveys and soil and stream-silt sampling. Christopher Island Formation volcanics yielded spectrometer readings as high as 11 times background, but samples of the rock assayed less than .01 per cent uranium oxide. Two soil samples

from half a mile southwest of Parker Lake, in the east-central part of the permit area, contained anomalous concentrations of zinc and one stream silt sample from one quarter mile west of the lake, in the northwestern part of the permit area, contained an anomalous concentration of lead.

PROSPECTING PERMIT 129

Canadian Delhi Oil Limited (33 1/3%) 66 A/2
now CanDel Oil Limited (64°07'N, 96°45'W)
28th Floor, 330 - 5th Avenue Southwest,
Calgary, Alberta.

Trans-Canada Resources Limited (33 1/3%)
1980 - 1055 West Hastings Street,
Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)
680, 444 - 7th Avenue Southwest,
Calgary, Alberta.

References:

Donaldson (1965, 1966); Wright (1967)

Property:

Prospecting permit 129 66 A/2

Location:

The prospecting permit lies 20 miles southwest of the settlement of Baker Lake and covers the northern half of Pitz Lake.

History:

Prospecting permit 129 was acquired by Canadian Delhi Oil Limited in 1969.

Description:

The northern third of the permit area is underlain by granite, quartz monzonite and granodiorite with minor syenite and syenodiorite (unit 5, Donaldson, 1966). These intrusive rocks enclose a 3/4-mile wide by 2½-mile long remnant of volcanic rock (unit 2, op. cit.) in the north-eastern corner of the area.

South of a fault trending east-northeast across the centre of the permit area, all outcrops consist of

Dubawnt Group sediments and volcanics. Sandstone with minor siltstone and mudstone of the Kazan Formation (unit 9, op. cit.) outcrop, in fault contact with the intrusive unit to the north, over an area $1\frac{1}{2}$ miles wide and $5\frac{1}{2}$ miles long in the east-central part of the permit area. Other Dubawnt Group units are the quartz-feldspar porphyries, agglomerate and minor interflow sedimentary rocks of the Pitz Formation (unit 11, op. cit.) and the pebbly sandstone (unit 13b, op. cit.) and sandstone (unit 13a, op. cit.) of the Thelon Formation. The volcanic unit outcrops in the southeastern quarter of the permit area and is overlain at the fault by a band of Thelon Formation sandstone one to two miles wide. The pebbly sandstone and sandstone units overlies porphyries in the west-central and southwestern corner of the permit region. Thelon Formation sandstone also outcrops east of Pitz Lake and along the eastern border of the permit area.

Two north-northwest-trending diabase dykes (unit 14, op. cit.) intrude the Dubawnt Group rocks along the eastern and western border of the permit area.

Current Work and Results:

The 1969 exploration program involved airborne gamma-ray spectrometer, INPUT electromagnetometer and magnetometer surveys, reconnaissance ground geophysical surveys and prospecting. The airborne surveys flown by Questor Surveys Limited failed to reveal significant radioactive anomalous zones and outlined only three areas of INPUT electromagnetometer anomalies with marginal-to-moderate strength intercepts.

Five radioactive zones were examined during the ground follow-up program. Four of these zones are underlain by Dubawnt Group sediments and volcanics while the fifth corresponds to a boulder train of thin-bedded sandstone. No uranium minerals were detected in any of the areas studied. Six minor INPUT electromagnetic anomalies were investigated. All are underlain by clastics of the Dubawnt Group and no sulphides or graphite were observed.

PROSPECTING PERMITS 110 and 111
Central Del Rio Oils Limited 66 A/5,6
now PanCanadian Petroleum Limited (64°22'N, 97°30'W)
205 - 9th Avenue Southeast,
Calgary 21, Alberta.

References:

Donaldson (1966); Wright (1967)

Property:

Prospecting permit 110 66 A/5
Prospecting permit 111 66 A/6

Location:

The permits are halfway between Schultz Lake to the north and Princess Mary Lake to the south, 40 miles west of the settlement of Baker Lake.

History:

The prospecting permits were issued to Central Del Rio Oils Limited in the spring of 1969.

Description:

The southern half and western quarter of the permit area is underlain by massive, medium-grained, equigranular granitoid rocks, mainly granite and granodiorite with minor amounts of well-layered gneisses (unit 5, Donaldson, 1966). Trending east from the central part of the westernmost permit (110) is a one- to two-mile wide zone of Hurwitz Group orthoquartzite (unit 8, op. cit.) in contact with schist, phyllite, greywacke and argillite (unit 1, op. cit.) to the south and granitoid rocks to the west and southeast. Both the northern and southern contacts of the orthoquartzite are marked by the presence of inliers of a dark red, locally silicified regolith (unit 12, op. cit.). In the northern part of permit 110 and the northwestern part of permit 111, the regolith underlies conglomerate and pebbly sandstone of the Dubawnt Group Thelon Formation (unit 13, op. cit.).

The contact of the orthoquartzite with the regolith and the Thelon Formation is an east-northeast-trending fault. Similar east- to east-northeast-trending faults occur in the orthoquartzite to the south. The Thelon Formation orthoquartzite contact is cut by a north-northwest-trending

fault and a parallel 400-foot wide diabase dyke 150 miles long.

Current Work and Results:

A combined airborne electromagnetic and magnetic survey was flown in 1969 over 1,040 miles of east-trending lines in conjunction with an airborne spectrometer survey flown over 3,241 line-miles. The electromagnetic survey outlined ten anomalous zones, six along the southern and eastern borders of prospecting permit 110 and four in the south-central part of prospecting permit 111. The spectrometer survey outlined numerous anomalies, most of which correspond to the contact between overburden and granitic outcrops and to ridges of Hurwitz quartzite.

In 1970 ground geological and geophysical surveys were performed by Cominco Limited over the airborne electromagnetic anomalous zones. Four grids totalling twenty line-miles were surveyed with an ABEM Gun horizontal-loop electromagnetometer. The strongest conductor detected during the ground survey extends east for $1\frac{1}{2}$ miles within a large lake ($64^{\circ}16'N$, $97^{\circ}34'W$) in the southeastern corner of prospecting permit 110. A number of weaker one-line anomalies were outlined on the other three grids to the north and east.

PROSPECTING PERMIT 93

Ensign Oils Limited (45%)
now Houston Oils Limited,
950 Three Calgary Place
Calgary, Alberta.

66 A/9
($64^{\circ}42'N$, $96^{\circ}15'W$)

Fort Reliance Minerals Limited (45%)
915, 25 Adelaide Street East,
Toronto, Ontario.

Citizens Pipeline Limited (10%)
890 Calgary House,
550 - 6th Avenue Southwest,
Calgary, Alberta.

References:

Donaldson (1966); Wright (1967)

Property:

Prospecting permit 93

66 A/9

Location:

Prospecting permit 93, centred 22 miles north-northwest of the settlement of Baker Lake, extends east from the Thelon River across the Half Way Hills to the centre of Whitehills Lake.

History:

The prospecting permit was acquired by Ensign Oils Limited and Fort Reliance Minerals Limited on 28 March 1969.

Description:

The northwestern third of the permit area is underlain by schist, phyllite, greywacke, argillite, undifferentiated volcanic rocks and minor quartzite (unit 1, Donaldson, 1966). Basaltic to andesitic volcanics (unit 2, op. cit.), which predominate to the southeast of a line trending northeast from the central region of the permit area are, for the most part, related in age to the metasediments. However, their distribution at Whitehills Lake suggests that some volcanic unit exposures are either repeated by faulting or else are intercalated with the younger sandstone of the Hurwitz Group. The 1969 geological surveys outlined a 100- to 150-foot thick transition zone of banded magnetite-hematite-quartz-carbonate iron-formation between the meta-sedimentary and volcanic units.

A large body of granite, quartz monzonite and granodiorite with minor syenite and syenodiorite (unit 5, op. cit.) extends southeast from the southern portion of the permit area to the north shore of Baker Lake. A $1\frac{1}{2}$ -mile wide and two-mile long stock of similar acidic composition intrudes the volcanics northeast of Whitehills Lake.

A northeast-trending four- to five-mile wide syncline of Hurwitz Group sediments with a central core of volcanics lies between the metasediments and granite in the centre of the map area. The basal phyllite and conglomerate (units 7a and b, op. cit.) of the group outcrop as a discontinuous layer less than $\frac{1}{2}$ -mile thick along the outline of the fold in contact with the metasediments, volcanics and granite. The phyllite occurs to the northeast and to the southwest while the conglomerate outcrops in the southeast. The main constituent of the syncline is orthoquartzite with minor slate, argillite, conglomerate and impure quartzite (unit 8, op. cit.). Volcanics occur in a $\frac{1}{2}$ - to $1\frac{1}{2}$ -mile wide zone along the axis of the fold.

The youngest rock unit on the permit is biotite syenite (unit 10, op. cit.), the Martell Syenite member of the Dubawnt Group. The syenite intruded along the conglomerate-metasediments contact in the northern part of Whitehills Lake to the southeast of the syncline.

Faulting is prominent in the permit area and especially in the nose of the syncline where the phyllite layer is disrupted. Two sets of faults bisect the area, one trending northeast and the other trending northwest.

Current Work and Results:

An extensive exploration program managed by Surveymin Limited was carried out over the permit area in 1969 and 1970. The 1969 program consisted of an airborne magnetic and radiometric survey and a geological mapping program during which most of the airborne radiometric anomalies were examined. The ground follow-up work indicated that the higher radiometric readings correspond to outcrops of pink granitic dykes and other intrusive rocks, samples of which assayed .01 per cent uranium oxide or less and .01 per cent thorium oxide.

Three hundred line-miles of airborne magnetometer, electromagnetometer and very-low-frequency electromagnetometer surveys were flown over the central and northern parts of the permit in 1970. Ground geophysical surveys, consisting of magnetometer, horizontal-loop electromagnetometer and very-low-frequency electromagnetometer readings, and detailed geological mapping were then carried out over parts of the 29 anomalous trends detected during the airborne survey. All but nine of the anomalies investigated were attributed to graphitic or moisture-laden shear zones and overburden effects.

The largest airborne anomalous trend, centred at 64°37'N and 96°23'W, extends east-northeasterly for six miles from the Thelon River along an arcuate zone of iron-formation in the west-central part of the permit area. The trend consists of up to five anomalous bands over a horizontal width of 200 to 1,500 feet. The ground geophysical surveys conducted over three grids spaced along the anomalous zone outlined good conductors along the northern flank of strong magnetic anomalies reflecting the iron-formation. To the southeast the iron-formation consists of a 150- to 400-foot wide black slate lower member, with minor magnetite, pyrite and graphite, overlain by 150 to 200 feet of mixed chert, iron oxide and iron carbonate grading into a 50- to 75-foot thick siderite upper member.

A second anomaly ($64^{\circ}39'N$, $96^{\circ}20'W$) occurs along that same arcuate iron-formation, but further to the northeast. The very-low-frequency and horizontal-loop electromagnetic readings indicate the presence of a good narrow conductor under overburden. One outcrop along the axis of the anomaly consists of brecciated and carbonatized chlorite schist veined with filaments of milky quartz.

Immediately northwest of this anomaly at $64^{\circ}39'N$ and $96^{\circ}21'W$, a complex pattern of horizontal-loop electro-magnetometer and magnetometer readings was obtained on overburden just south of an outcrop of sheared chloritic andesite. In contact with the andesite is the slaty chlorite-carbonate schist lower member of an iron-formation band, the upper member of which is interbedded hematite and magnetite. The formation has been intruded by granite in the general area of the anomaly.

Two anomalies ($64^{\circ}40'30"N$, $96^{\circ}14'W$) in the north-central part of the permit area lie within a complex zone of shearing. The adjacent rocks have been reduced to highly carbonatized sericite-chlorite schist with veinlets and blebs of milky quartz. The easternmost anomaly coincides with the intersection of a west-trending shear zone and a northeast-trending shear zone enclosing the second anomaly.

To the south the ground electromagnetic surveys have outlined an easterly-trending conductor ($64^{\circ}40'N$, $96^{\circ}11'W$) within an overburden-filled valley south of a ridge of massive to schistose andesite and north of an outcrop of fine-grained andesite in fault contact with quartzite. The fault is thought to extend east for three miles along a chain of small lakes.

A second easterly-trending fault zone two miles farther north parallels a good conductor ($64^{\circ}42'N$, $96^{\circ}08'W$) within a slaty iron-formation in contact with feldspathic tuff to the south and a diorite sill to the north. Two peridotite sills, 75 and 100 feet wide and up to 1,500 feet long occur in the vicinity of the anomaly.

Just north of this area at $64^{\circ}42'30"N$ and $96^{\circ}04'20"W$, a good conductor with appreciable depth occurs in iron-formation of the black slate, banded chert facies at the contact of andesite with argillite and greywacke.

In the northeast corner of the permit, two conductors ($64^{\circ}43'N$, $96^{\circ}00'W$) with related magnetic responses trend easterly under overburden. Andesite, greywacke and argillite occur to the north of an interpreted fault parallel to the conductor and andesite occurs to the south.

PROSPECTING PERMIT 130	Copper
Canadian Delhi Oil Limited (33 1/3%)	66 A/13
now CanDel Oil Limited	(64°57'N, 97°45'W)
28th Floor,	
330 - 5th Avenue Southwest,	
Calgary, Alberta.	

Trans-Canada Resources Limited (33 1/3%)
1980 - 1055 West Hastings Street,
Vancouver, B.C.

Uno-Tex Petroleum Corporation (33 1/3%)
680, 444 - 7th Avenue Southwest,
Calgary, Alberta.

References:

Donaldson (1966); Wright (1967)

Property:

Prospecting permit 130	66 A/13
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Location:

The permit area includes the northwestern part of Schultz Lake and the ground to the northwest.

History:

Prospecting permit 130 was acquired by Canadian Delhi Oil Limited in early 1969.

Description:

The main rocks outcropping within the permit area are granite, quartz monzonite and granodiorite with minor syenite and syenodiorite (unit 5, Donaldson, 1966). These intrusive rocks are overlain along the north shore of Schultz Lake and in the northwest corner of the permit area by units of the Thelon Formation, a member of the Dubawnt Group.

In the permit area the Thelon Formation comprises conglomerate with minor red siltstone (unit 13a, op. cit.) and sandstone (unit 13c, op. cit.). Conglomerate outcrops as a northeast-trending one-half to one-mile wide band in contact with the intrusive complex in the northwestern part of the permit area. The sandstone unit predominates along the north shore of Schultz Lake and within a triangular area extending from the northern half of the western border to the north-central part of the permit area.

Contacts between basement units and conglomerate in the north and between the intrusive rocks and the sandstone to the south are marked by major east-northeast-trending faults. Intrusion of northwest-trending diabase dykes (unit 14, op. cit.) dislocated the southern fault.

Current Work and Results:

Airborne electromagnetic, magnetic and gamma-ray spectrometer surveys were flown over the permit area in 1969. Reconnaissance ground geophysical surveys and prospecting were performed over six areas of interest outlined during the airborne surveys.

The radiometric survey outlined six main zones of moderate-to-high radioactivity, three of which were investigated during the ground follow-up program. Two minor areas were also investigated. Anomalous radioactivity is due to pegmatite dyke- and sill-like bodies intruding the basement rocks and to structural effects of agglomerate and conglomerate formations in the Dubawnt Group rocks.

One INPUT electromagnetic conductor was outlined during the survey and has a coincident magnetic response of 100 gammas. Investigations during the ground program revealed the presence of disseminated pyrite and pyrrhotite as lenses and layers, two inches to two feet wide over lengths of up to 300 feet, in the south-central part of the permit area at 64°47'30"N, and 97°47'W. Traces of chalcopyrite in the form of minute fracture fillings associated with quartz veins were observed in one outcrop of a silicified biotite-garnet gneiss unit up to 300 feet wide and trending north-northwest within biotite granite.

PROSPECTING PERMIT 96
Canadian Gridoil Limited 66 B/5
now Ashland Oil Canada Limited (64°22'N, 99°45'W)
1800, 639 - 5th Avenue Southwest,
Calgary, Alberta.

References:

Wright (1967); Donaldson (1969)

Property:

Prospecting permit 96 66 B/5

Location:

The prospecting permit extends northeast from the border of the Thelon Game Sanctuary at the Dubawnt River to within two miles of the southwestern shore of Aberdeen Lake and covers the northwestern part of the Marjorie Hills.

History:

Prospecting permit 96 was acquired by Canadian Gridoil Limited in the spring of 1969. Subsequent to the exploration program carried out in the summer of 1969 by the Aquitaine Company of Canada Limited, in agreement with Canadian Gridoil Limited, the permit was relinquished in 1970.

Description:

The prospecting permit covers the contact of the flat-lying sedimentary and volcanic rocks of the Dubawnt Group with the granitic basement complex. The slightly gneissic, equigranular granodiorite (unit 1, Donaldson, 1969) forming the basement in the area outcrops along the northern shore of the Dubawnt River and in the northeastern corner of the permit area.

Unconformably overlying the basement rocks is the quartz-feldspar porphyry (unit 5, op. cit.) of the Pitz Formation. This volcanic member of the Dubawnt Group outcrops in the southeast and northwest part of the permit area and is the predominant rock type southwest of the Dubawnt River.

In the central and northeastern parts of the permit area, the basal conglomerate (unit 6a, op. cit.) of the Thelon Formation lies directly on the basement rocks due to the

erosion or nondeposition of the Pitz Formation. Conglomerate also occurs as channels and sheets at stratigraphically higher levels within the sandstone (unit 6c, op. cit.) of the Thelon Formation. The sandstone outcrops in a zone extending northwest from the southeast corner of the permit area and consists of orthoquartzite with interstitial kaolin-group clays and siliceous cement.

A diabase dyke (unit 9, op. cit.) intrudes the rock units along a major northwest-trending fault across the centre of the permit.

Current Work and Results:

The first stage in the 1969 exploration program was the preparation of a photogeological study of the area after which an airborne radiometric and magnetic survey was flown. A crew of three geologists and three prospectors compiled the results of the airborne survey as they became available and did ground follow-up work including geochemical soil sampling, on the anomalies.

Fourteen anomalies were detected along the eastern border and in the northwestern corner of the permit area. All of the anomalies were either due to rock outcrops and boulder fields in drift-covered areas or to lake-to-shore effects.

PROSPECTING PERMIT 112

Buttes Resources Canada Limited
Suite 1530,
606 - 4th Street Southwest,
Calgary 2, Alberta.

66 B/11
(64°37'N, 99°15'W)

References:

Wright (1967); Donaldson (1969)

Property:

Prospecting permit 112

66 B/11

Location:

The permit area extends north from the south shore of the west-central part of Aberdeen Lake and includes the northern half of a large peninsula trending north into the lake.

History:

Prospecting permit 112 was acquired by Buttes Resources Canada Limited in the spring of 1969 and relinquished in 1970.

Description:

An extensive blanket of glacial drift covers the bed-rock within the permit area. The two outcrops mapped consist of sandstone with minor siltstone and mudstone (unit 6c, Donaldson, 1969) of the Thelon Formation, a member of the Dubawnt Group.

Current Work and Results:

Geophoto Services Limited performed a photogeological study of the permit area in 1969. The study confirmed the scarcity of outcrops and indicated most lineaments within the permit area trend northwest.

PROSPECTING PERMITS 157, 158 and 159
Kary Explorations Limited
300 - 310 9th Avenue Southwest,
Calgary 2, Alberta.

66 B/13,14; C/16
(64°52'N, 99°45'W)

References:

Wright (1967); Donaldson (1969)

Property:

Prospecting permit 157	66 B/13
Prospecting permit 158	66 B/14
Prospecting permit 159	66 C/16

Location:

The area covered by the prospecting permits extends east for 35 to 40 miles from the border of the Thelon Game Sanctuary at the Tibielik River.

History:

Kary Explorations Limited acquired the prospecting permits in early 1969 and relinquished them in 1971.

Description:

Numerous abandoned beaches, eskers and sand ridges occur within the heavily drift-covered permit areas. The few outcrops and frost-heaved boulders in the area are sandstone with minor siltstone and mudstone (unit 6c, Donaldson, 1969) of the Thelon Formation, a member of the Dubawnt Group.

Current Work and Results:

In 1969 a photogeological study of the area by Geophoto Services Limited, confirmed the lack of outcrops.

PROSPECTING PERMIT 100
Abidonne Oils Limited 66 F/1
now Ulster Petroleum Limited (65°07'N, 100°15'W)
690, 700 - 6th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 100 66 F/1

Location:

The prospecting permit is 31 miles north of the eastern shore of Beverly Lake and the junction of the Thelon and Dubawnt rivers.

History:

The permit was acquired by Abidonne Oils Limited in the spring of 1969 and relinquished in 1970.

Description:

The main feature in the permit area is a five- to eight-mile wide belt of granite, granodiorite and allied rocks (unit 13, Wright 1967) trending southwest across the centre of the area. The granitic rocks are overlain unconformably by sandstone and pebbly sandstone, grit and arkose of the Dubawnt Group (unit 19, op. cit.) which outcrops in the southeast and northwest corner of the permit. The sandstone

beds range in attitude from near-horizontal to dipping 50 degrees southeast.

Current Work and Results:

Geoterrex Limited performed airborne radiometric and magnetic surveys over the permit area in 1969. The aeromagnetic contours indicate that the area is magnetically quiet except in the southwestern corner where some northwest-striking dykes occur. No strong uranium or thorium anomalies were detected during the survey.

PROSPECTING PERMIT 104	
Republic Resources Limited	66 F/2
660, 330 - 5th Avenue Southwest,	(65°07'N, 100°45'W)
Calgary 1, Alberta.	

Reference:

Wright (1967)

Property:

Prospecting permit 104	66 F/2
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Location:

The prospecting permit area along the northeastern border of the Thelon Game Sanctuary is bisected by a river which flows north for 50 miles from a relatively large lake in the southeastern part of the permit area to Upper Garry Lake.

History:

The prospecting permit was acquired by Republic Resources Limited in 1969.

Description:

Part of a 10- to 15-mile wide, southwest-trending tongue of granite (unit 13, Wright 1967) underlies the southeastern corner of the permit area. The remainder of the area is underlain by sandstone and pebbly sandstone, grit and arkose of the Dubawnt Group (unit 19, op. cit.) which is intruded by a north-northwest-trending diabase dyke (unit 23, op. cit.) in the north-central part of the permit area.

Current Work and Results:

Subsequent to a photogeological study of the permit area performed in 1969, a geological and geophysical reconnaissance program and prospecting were carried out over the area in 1970. No sulphide minerals or geophysical anomalies were detected during the survey.

PROSPECTING PERMIT 123

F.T. Cousins Minerals Limited

510, 320 - 7th Avenue Southwest,
Calgary, Alberta.

66 G/1

(65°07'N, 98°15'W)

Reference:

Wright (1967)

Property:

Prospecting permit 123

66 G/1

Location:

The permit area is centred 32 miles northwest of Schultz Lake and 50 miles northeast of Aberdeen Lake.

History:

F.T. Cousins Limited acquired prospecting permit 123 in early 1969 and relinquished it in 1970.

Description:

Glacial drift blankets most of the northern part of the permit area and outcrop is limited. The major unit on the permit is the white quartzite member (unit 9, Wright 1967) of the Hurwitz Group. Near the centre of the permit, a few outcrops are composed of impure gneissic granite, granodiorite and allied rocks (unit 13, op. cit.). This unit also outcrops along the southern half of the eastern border of the permit. To the southwest, the Hurwitz quartzite is overlain by sandstone, pebbly sandstone, grit and arkose of the Dubawnt Group (unit 19, op. cit.)

Current Work and Results:

The 1969 exploration program involved a photogeological study of the permit area and an airborne spectrometer survey. The survey outlined 22 radioactive anomalies, four of which have anomalous values of 3 to 12 uranium counts per second above background. Two of the anomalies occur on the northern border of the permit area in overburden. The other two anomalies, in the southeastern part of the permit area, occur at or near the granite-quartzite and quartzite-sandstone contacts.

PROSPECTING PERMIT 114

Houston Oils Limited

950, 355 - 4th Avenue Southwest,
Calgary 1, Alberta.

66 G/2

(65°07'N, 98°45'W)

Trudel Minerals Limited

3 Calgary Place,

355 - 4th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 114

66 G/2

Location:

The permit area is 45 miles north of Aberdeen Lake and 12 miles east of Nauyasuu Lake.

History:

The prospecting permit was acquired by Houston Oils Limited and Trudel Minerals Limited in early 1969 and relinquished in 1971.

Description:

The prospecting permit area covers the northeastern contact of the Dubawnt Group sedimentary and volcanic assemblage with the basement rocks. The contact trends northwest across the centre of the permit area. The basement complex in the permit area consists mainly of Hurwitz Group white quartzite with some impure quartzite and gritty sandstone

(unit 9, Wright, 1967). In the northeastern corner of the area, dolomite and limestone (unit 10, op. cit.) of the upper member of the Hurwitz Group overlies the sandstone.

Southwest of the contact, the permit area is underlain by sandstone and pebbly sandstone (unit 19, op. cit.) of the Dubawnt Group. During the 1970 geological reconnaissance program, minor alternating beds of fine-grained siltstone and shale and a band of dark volcanic rocks were detected and tentatively assigned to the Thelon and Pitz Formations of the Dubawnt Group.

Current Work and Results:

An airborne gamma-ray survey flown over the permit area in 1969, subsequent to a photogeological study, outlined five areas of interest, three of which are marked by slight increases in uranium (Bi^{214}) and thorium (Tl^{208}) count. A fourth area, in the southeastern corner of the permit is characterized by high uranium and uranium-to-thorium ratio values while the fifth area, in the northeastern corner of the permit area, consists of moderate increases in uranium and uranium-to-thorium ratio values.

In 1970 five areas, totalling 18.11 square miles were subjected to an exploration program involving reconnaissance ground geochemical, magnetometer and scintillometer surveys, detailed geological mapping and prospecting. Scintillometer readings higher than background were obtained over outcrops of red siltstone and shale, a sample of which assayed less than .01 per cent uranium oxide. No significant amounts of copper, lead or zinc were detected in the geochemical silt and soil samples collected.

PROSPECTING PERMIT 108

Canadian Export Gas & Oil Limited
736 - 8th Avenue Southwest,
Calgary, Alberta.

66 G/4
(65°07'N, 99°45'W)

Canadian Homestead Oils Limited
630 - 6th Avenue Southwest,
Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 108

66 G/4

Location:

The prospecting permit area, 125 miles northwest of the settlement of Baker Lake, extends to the southwest of Sand Lake.

History:

Prospecting permit 108, acquired in early 1969 by Canadian Export Gas & Oil Limited and Canadian Homestead Oils Limited, was relinquished in early 1970.

Description:

The prospecting permit area is at the northeastern contact of the Dubawnt Group sedimentary and volcanic rocks with the underlying basement complex. Extensive glacial deposits blanket most of the permit area. Dubawnt Group sandstone (unit 19, Wright, 1967) outcrops in the southwestern corner of the permit area while granite (unit 13, op. cit.) of the basement complex outcrops in the northwestern corner. The contact between these two units on the permit area is blanketed by glacial drift.

Current Work and Results:

A photogeological study of the area in 1969 confirmed the scarcity of outcrop and indicated that the dominant lineament trend is north to northeast with weaker expressions trending west to northwest.

PROSPECTING PERMIT 116

Ensign Oils Limited

66 G/8

now Houston Oils Limited

(65°22'N, 98°15'W)

950, 355 - 4th Avenue Southwest,
Calgary 1, Alberta.

Fort Reliance Minerals Limited

915 - 25 Adelaide Street East,
Toronto, Ontario.

Pacific Silver Mines and Oils Limited

9th Floor, 850 West Hastings Street,
Vancouver, B.C.

Reference:

Wright (1967)

Property:

Prospecting permit 116

66 G/8

Location:

The permit area is centred 50 miles north-northwest of Schültz Lake and 25 miles south-southeast of Deep Rose Lake.

History:

Prospecting permit 116 was acquired by the three companies in early 1969 and relinquished in 1971.

Description:

The permit area is underlain by a tongue of intrusive granite (unit 13, Wright, 1967) trending south into Hurwitz Group metasediments. Glacial drift covers more than ninety per cent of the permit area and the lithologic contacts are indeterminable.

The granitic intrusive tongue, in the north-central part of the permit area, grades into syenite at its contact with the metasedimentary assemblage near the centre of the permit area. The white quartzite member (unit 9, op. cit.) of the Hurwitz Group predominates in the southern half of the permit area with the overlying limestone and impure clastic sediments (unit 10, op. cit.) occurring in a 5-mile wide east-northeast-trending band at the eastern border of the area.

Current Work and Results:

An airborne magnetometer and gamma-ray spectrometer survey flown by Geophoto Services Limited in 1969 outlined a number of radioactive anomalies in the western half of the area underlain by the granitic tongue. The ground investigation of most of the airborne anomalies in 1969 and 1970 indicated that the anomalies are due to outcrops and boulder fields of granitic material with a relatively higher background than the adjacent covered areas. No uranium minerals were detected.

PROSPECTING PERMIT 101

Abidonne Oils Limited

66 H/5

now Ulster Petroleum Limited

(65°22'N, 97°45'W)

690, 700 - 6th Avenue Southwest,

Calgary 1, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 101

66 H/5

Location:

The permit area is 22 miles southwest of Amer Lake, 26 miles southeast of Deep Rose Lake and 44 miles north of Schultz Lake.

History:

The prospecting permit was acquired by Abidonne Oils Limited in the spring of 1969 and relinquished in 1970.

Description:

An east-northeast-trending belt of Hurwitz Group greywacke, impure quartzite, slate, phyllite, conglomerate, dolomite and limestone (unit 10, Wright 1967) flanked and underlain by quartzite with some impure quartzite and gritty sandstone (unit 9, op. cit.) is the major feature in the permit area. The Hurwitz Group sediments, greywacke and quartzite, are within an assemblage of granite, granodiorite and allied rocks (unit 13, op. cit.) which outcrops in the northwestern and southeastern corners of the permit area.

Current Work and Results:

The 1969 exploration program involved airborne magnetometer and radiometric surveys. No radiometric anomalies were detected.

PROSPECTING PERMIT 124

F.T. Cousins Minerals Limited

66 H/6

510, 320 - 7th Avenue Southwest,
Calgary, Alberta.

(65°22'N, 97°15'W)

Reference:

Wright (1967)

Property:

Prospecting permit 124

66 H/6

Location:

The permit area is centred 80 miles north-northwest of the settlement of Baker Lake and 15 miles south of Amer Lake.

History:

The prospecting permit was acquired in the spring of 1969 by F.T. Cousins Limited. The 1970 exploration program was performed under the direction of the Aquitaine Company of Canada Limited. The permit was relinquished in early 1970.

Description:

The prospecting permit covers the southern edge of a 15- to 30-mile wide and 80-mile long metasedimentary basin trending east in gneissic granitic terrain. The white quartzite member (unit 9, Wright, 1967) of the Hurwitz Group is the predominant unit of the metasedimentary sequence which underlies the northern quarter of the permit area. This unit is overlain by a two- to five-mile wide band of impure quartzite, schist and crystalline limestone (unit 10, op. cit.) which trends east-northeast along the northern border of the permit area. The white quartzite also outcrops as a 2-mile wide band trending northeast from the southwestern corner of the permit area into the impure gneissic granite, granodiorite and allied rocks (unit 13, op. cit.) which underlie the

southern three quarters of the area. Undifferentiated Hurwitz Group metasediments (unit 11, op. cit.) outcrop in a roughly circular area to the east while intermediate-to-basic volcanic rocks and derived amphibole schist and gneiss (unit 7, op. cit.) outcrop in two small zones in the southeastern corner of the permit area.

Current Work and Results:

The 1969 exploration program consisted of a photo-geological study of the permit area and an airborne radioactive spectrometer survey. In 1970 a more detailed airborne spectrometer survey was flown over the northern quarter of the permit area and the metasedimentary sequence was mapped by geologists of the Aquitaine Company of Canada Limited at a scale of 1:20,000.

The spectrometer surveys outlined a one-mile long zone (65°27'N, 97°23'W) of anomalous uranium radioactivity on the north shore of a small lake near the northwestern corner of the permit area. The anomalous zone contains five distinct point sources 16 to 36 uranium counts per second above background and is underlain by schist and impure quartzite of the Hurwitz Group.

PROSPECTING PERMIT 117
Legal Well Strippers Limited
706 Chancery Hall,
Edmonton 15, Alberta.

66 H/7
(65°22'N, 96°45'W)

Reference:

Wright (1967)

Property:

Prospecting permit 117

66 H/7

Location:

The permit area is centred 22 miles southeast of Amer Lake and 75 miles north-northwest of the settlement of Baker Lake.

History:

Prospecting permit 117 was acquired by Legal Well Strippers

Limited in early 1969 and relinquished in 1970.

Description:

The prospecting permit covers the southern edge of a northeast-trending, 10- to 15-mile wide belt of Hurwitz Group metasediments in granitic terrain. The main Hurwitz Group unit, white quartzite (unit 9, Wright, 1967), underlies the northern quarter of the permit area. A smaller quartzite remnant outcrops in the southeastern corner of the area. The overlying greywacke with impure quartzite, slate, phyllite, conglomerate, limestone and dolomite (unit 10, op. cit.) occurs only in the northwestern corner of the permit area within the main metasedimentary belt. Undifferentiated Hurwitz Group rocks (unit 11, op. cit.) form two small bodies in the west-central and south-central areas of the permit. Intermediate-to-basic volcanic rocks and derived amphibole schists and gneiss (unit 7, op. cit.), possibly a younger member of the group, outcrops along the southern edge of the sediments in the south-central part of the permit area and along the western edge of the quartzite to the southeast.

The central and southwestern parts of the permit area are underlain by granite, granodiorite and allied rocks (unit 13, op. cit.). Ultrabasic and allied rocks (unit E, op. cit.) occur in a tear-shaped body trending northeast at the southern edge of the metasedimentary belt in the northwestern corner of the area.

Current Work and Results:

The exploration program performed in 1969 over the permit area consisted of a photogeological study and an airborne radioactive spectrometer survey. Only three of the 35 anomalies detected show anomalous values of greater than 6 counts per second above background in the uranium channel.

AMER LAKE PROJECT
Aquitaine Company of Canada Limited
2000, 540 - 5th Avenue Southwest,
Calgary, Alberta.

Uranium
66 H/10
(65°37'N, 96°45'W)

Reference:

Wright (1967)

Property:

34 BRE, 2 BRI, 17 BRO, 8 BRU, 11 BRY,
36 PRO claims and prospecting permit 200 66 H/10

Location:

The area of prospecting permit 200 extends east from the southeastern part of Amer Lake to six miles west of a north-flowing tributary of the Meadowbank River. The BRE, BRI, BRU and BRY claim groups cover the southwestern shore of Amer Lake and the BRO and PRO claims an area centred six miles to the northeast.

History:

The claim groups were staked in the summer of 1969 to cover extensive uranium mineralization discovered on the ground following a survey flown that summer. Prospecting permit 200 was acquired in early 1970.

Description:

The prospecting permit and claim groups cover part of a 12-mile wide belt of Hurwitz Group metasediments trending east-northeast within granite, granodiorite and allied rocks (unit 13, Wright, 1967). The southern half of the permit area and the claims are underlain by white quartzite with some impure quartzite and gritty sandstone, minor intercalated pebbly conglomerate and siliceous iron-formation (unit 9, op. cit.) and greywacke, impure quartzite, slate, phyllite, and conglomerate (unit 10, op. cit.). Three main northwest-trending faults disrupt the metasediments and extend into the basement complex. Detailed mapping in 1970 divided the meta-sedimentary sequence into four units: basal white quartzite, crystalline limestone, schist and upper pink-grey quartzite. In the western part of the area, the sequence is basal quartzite, crystalline limestone and interbedded upper quartzite and schist.

Current Work and Results:

In 1969 the outlined airborne anomalies were followed up by detailed ground prospecting which enabled Aquitaine to prepare for a systematic drilling campaign in 1970.

The 1970 program involved a close spacing helicopter radiometric survey and ground scintillometer surveys outside the claim area staked in 1969, the geological mapping of the area underlain by Hurwitz Group units, and the diamond drilling of thirty-seven holes totalling 26,802 feet on two radioactive zones within the BRO and PRO groups.

Nine holes totalling 6,180 feet probed the northeastern radioactive zone (65°33'17"N, 96°41'48"W) on claims PRO 28, 29 and 35. Two northwest-trending and southwest-dipping lenses of uranium minerals in narrow fractures in quartzitic schist were outlined. The highest concentrations of uranium oxide detected in the holes, plunging 45 degrees due north, were as follows:

<u>Hole number</u>	<u>Location</u>	<u>Top of intersection</u>	<u>Length (inches)</u>	<u>Uranium oxide (%)</u>
A-Northern lens				
1	00N, 00W	130'6"	90	.117
2	325S, 00W	276'0"	42	.011
3	00N, 650W	196'0"	48	.045
4	650N, 1950W	315'0"	24	.011
B-Southern lens				
2	325S, 00W	62'0"	18	.019
4	00N, 650W	66'3"	142	.067

A larger radioactive zone (65°32'54"N, 96°45'10"W), 1½ miles to the southwest on claims BRO 6 to 10 and PRO 1,2,10, 11 was probed by 28 drill holes totalling 20,620 feet which outlined four east-trending and south-dipping lenses of uranium concentration.

The northern lens, traced for a distance of 4,950 feet and still open to the east, is gently folded into a south-erly plunging homocline. This lens was intersected at a depth of 600 to 700 feet in the hinge of the fold and again 1,700 feet to the west. The lens thins out at a depth of 550 feet between these two locations.

A second major lens of similar shape and lateral extent outcrops 8,000 to 12,000 feet to the south. It was traced to a depth of 300 feet and is open at depth and to the east. A third lens, 8,000 feet south of the latter,

was traced over a length of 2,050 feet and to a depth of 200 feet and is open to the east and at depth. Two drill holes intersected a small lens at a depth of 500 feet between the large southern and northern lenses.

<u>Hole number</u>	<u>Location</u>	<u>Top of intersection</u>	<u>Length (inches)</u>	<u>Uranium oxide (%)</u>
A-Northern lens				
12	820N, 1640W	373'6"	41	.093
18	1230N, 1640W	143'6"	66	.110
		215'0"	120	.071
13	820N, 2460W	209'0"	31	.094
		268'3"	46	.059
15	00N, 2870W	580'1"	35	.085
		669'10"	23	.169
16	820N, 3280W	279'1"	57	.065
11	820N, 4100W	437'0"	36	.106
		532'8"	74	.069
26	1640N, 4100W	75'0"	80	.069
30	00N, 4920W	876'11"	48	.057
		898'0"	24	.050
17	820N, 4920W	373'5"	34	.094
		447'3"	25	.112
		500'2"	19	.129
20	1640N, 4920W	51'9"	58	.062
		92'0"	55	.063
23	1640N, 5740W	60'0"	59	.069
		106'6"	81	.102
25	1640N, 6560W	94'0"	61	.198
B-Southern lens				
14	820N, 820W	179'5"	38	.065
		347'6"	218	.057
28	00N, 1640W	390'4"	32	.148
12	820N, 1640W	123'10"	38	.136
		255'9"	119	.059
10	00N, 2460W	243'6"	62	.086
15	00N, 2870W	245'0"	46	.103
22	00N, 4100W	232'0"	62	.105
30	00N, 4920W	282'1"	131	.070
		321'5"	48	.054
C-Eastern lens				
35	00N, 00W	90'9"	34	.072
33	00N, 820W	143'0"	114	.070
		231'1"	35	.166
19	00N, 2050W	91'7"	48	.101
		170'9"	35	.113

D-Western lens

22	00N, 4100W	651' 2"	59	.100
30	00N, 4920W	766' 10"	48	.051
		790' 0"	74	.122

NORTHERN DISTRICT OF KEEWATIN

PROJECT WAGER	Nickel, Copper
King Resources Company	56 J,K,P
1300 Elveden House,	(67°00'N, 91°00'W)
Calgary, Alberta.	

References:

Heywood (1961, 1967)

Property:

Prospecting permit 225	56 P/4
Prospecting permit 226	56 P/5
Prospecting permit 227	56 P/6
Prospecting permit 228	56 P/7
Prospecting permit 229	56 P/8
Prospecting permit 230	56 P/9
16 MC claims	56 J/11
96 KR claims	56 J/13
92 KRA claims	56 J/15
74 KRF claims	56 K/6
52 KRE claims	56 K/7
48 KRD claims	56 K/8
16 KRC claims	56 K/9
60 KRB claims	56 K/10
4 MC claims	56 P/11

Location:

The group of prospecting permits, centred at 67°22'N and 89°00'W, extends southwest from Cape Weynton on the west shore of Committee Bay to the north-flowing Kellett River. Four MC claims (67°36'30"N, 89°03'W) were staked 17 miles north of the prospecting permit areas and 26 miles west-southwest of Cape Weynton. All other claim groups were staked south and southwest of the permit areas; the MC claim group (66°38'30"N, 89°09'W) extends parallel to and one mile east of the southern arm of Curtis Lake, the KR claims (66°47'30"N, 91°57'W) extend north from the shore of a major arcuate widening of the Hayes River, the KRA claims (66°57'20"N, 90°55'W) trend northeast 11.5 miles north-northwest of the north shore of Walker Lake. The KRF claims (66°20'30"N, 93°17'W), KRD and KRE claims (66°21'30"N, 92°31'W) and KRB and KRC claims

(66°32'30"N, 92°32'W) are 18.5 miles northwest, 15 miles north-northeast and 25.5 miles north-northeast of the north shore of Laughland Lake.

History:

King Resources Company acquired the prospecting permits and the KR groups of claims in early 1970 to cover a number of ultrabasic bodies outlined by W.W. Heywood in 1961 and 1967. The two groups of MC claims and 38 KRF claims, staked later that same year, cover interesting areas detected during the exploration program.

Description:

The Project Wager studies covered a four- to thirty-mile wide belt of metasediments trending southeast for 190 miles from the shore of Committee Bay. Within the northeastern part of the belt, Heywood has recognized three units of the Prince Albert Group: undifferentiated metasedimentary rocks including impure quartzite, phyllite, sericite schist, quartz-mica schist, paragneiss and layered mafic gneiss (unit 2, Heywood 1967), quartzite with minor paragneiss and schist (unit 3, op. cit.) and iron-formation (unit 4, op. cit.). Southeast of the Kellett River the belt is mapped as greenstone, greenschist, hornblende schist, amphibolite, biotite schist and gneiss with minor micaceous quartzite, mixed gneiss and granite (unit 1, Heywood, 1961), minor hornblende schist and amphibolite probably derived from basic-to-intermediate volcanic rocks (unit 1a, op. cit.), schist and gneiss derived from sedimentary rocks (unit 1b, op. cit.) and quartzite and schistose quartzite (unit 1c, op. cit.). This metasedimentary belt is flanked to the northwest and southeast by granitic gneiss and minor schist (units 5 and 10, Heywood, 1961 and 1967), migmatite (unit 11, Heywood 1967) and layered gneiss (unit 9, Heywood 1967). The metasedimentary belt and enclosing gneiss are intruded by massive to foliated granite, granodiorite, quartz monzonite and quartz diorite plutons (units 6a and 12, Heywood, 1961 and 1967), peridotite and serpentinite dykes and sills (units 7 and 8, op. cit.) and basalt, gabbro, diabase dykes and sills (units 9 and 17, op. cit.). Ultrabasic bodies generally trend northeast as do the granitic intrusions while the younger diabasic bodies trend northwest across the structural trend of the area.

Current Work and Results:

The 1970 exploration program began with a photo-geological study of the area followed by geological recon-

naissance and prospecting over the whole of the Project Wager area. Geophysical studies using various electromagnetometer systems were undertaken on two showings and detailed geological and geophysical surveys, trenching and sampling were done on seven of the twenty-five sulphide showings detected by the reconnaissance surveys.

Within the KR group on the Hayes River, sulphide zones (66°47'N, 91°55'W) 5 to 40 feet wide and less than 500 feet long trend south to southwest and dip east to southeast within metagreywackes, metaquartzites and chlorite schists adjacent to small concordant ultramafic intrusions. The metasedimentary sequence and ultrabasic bodies are intruded by pegmatitic granite. Detailed geophysical surveys outlined a number of conductors with associated magnetic anomalies coincident with finely disseminated pyrite, pyrrhotite, minor bornite and chalcopyrite zones. Samples from trenches blasted in the mineralized zones assayed up to .05 per cent copper and .18 per cent nickel.

Three narrow east-northeast-trending zones (66°57'N, 91°00'W) of disseminated pyrite and pyrrhotite in metasediments enclosing ultrabasic bodies on the KRA claims were investigated by means of detailed geological and geophysical surveys and trenching. A sample from one of the zones contained .03 per cent copper and .02 per cent nickel. Samples of disseminated pyrrhotite, with minor pyrite and bornite, from a 10- to 50-foot wide and 3,500-foot long zone (66°21'N, 93°15'W) on the KRF claims contain up to .51 per cent nickel and .02 per cent copper. The sulphide zone possibly extends 3,500 feet further in a tightly folded area and trends northeast and dips steeply southeast within impure quartzite and garnetiferous chlorite-sericite schist 2,000 feet northwest of a 10,000- by 2,000-foot ultrabasic body. Good conductors with magnetic correlation coincide with the sulphide zones. East of the south arm of Curtis Lake a series of parallel and discontinuous bands of sulphide minerals (66°39'N, 89°96'W), 5 to 30 feet wide and up to 100 feet long, occur in a northeast-striking and southeast-dipping sequence of metagreywacke, biotite schist, minor garnetiferous chlorite schist, and impure quartzite. The sulphide zones, samples of which assayed up to .10 per cent copper and .07 per cent nickel, are spatially related to concordant ultramafic bodies within the metasedimentary sequence. Numerous conductors detected by ground geophysical surveys coincide with the sulphide zones, whose collective strike length is more than 5,000 feet. The last two occurrences investigated are within the prospecting permit areas. In the west-central part of prospecting permit 228, (67°21'N, 88°58'W) sulphide minerals are concentrated in

metasediments adjacent to and enclosed by an ultrabasic body. The largest single sulphide zone is over 1,200 feet long and 5 to 30 feet wide. Up to .06 per cent copper and .01 per cent nickel were detected in samples of metasedimentary remnants within the ultrabasic intrusion. In the north-central part of prospecting permit 225, (67°12'N, 89°47'W) sulphides are concentrated along the northwest margin of and within an ultramafic body 2,000 feet long. Some of this material assayed .29 per cent nickel and .06 per cent copper with .15 per cent nickel.

MELVILLE PENINSULA

PROSPECTING PERMITS 177 to 199

Aquitaine Company of Canada Limited
20th Floor, 540 - 5th Avenue Southwest,
Calgary, Alberta.

46 K,N,O,P
(67°22'N, 83°30'W)

Reference:

Heywood (1967)

Property:

Prospecting permit 177	46 K/13
Prospecting permit 178	46 K/15
Prospecting permit 179	46 K/16
Prospecting permit 180	46 N/1
Prospecting permit 181	46 N/2
Prospecting permit 182	46 N/3
Prospecting permit 183	46 N/8
Prospecting permit 184	46 O/2
Prospecting permit 185	46 O/3
Prospecting permit 186	46 O/4
Prospecting permit 187	46 O/5
Prospecting permit 188	46 O/6
Prospecting permit 189	46 O/7
Prospecting permit 190	46 O/8
Prospecting permit 191	46 O/9
Prospecting permit 192	46 O/10
Prospecting permit 193	46 O/11
Prospecting permit 194	46 O/12
Prospecting permit 195	46 O/14
Prospecting permit 196	46 P/5
Prospecting permit 197	46 P/6
Prospecting permit 198	46 P/11
Prospecting permit 199	46 P/12

Location:

The prospecting permits cover a 24- to 56-mile wide area trending southeast from the east coast of Melville Peninsula to west of Ross Bay and 20 miles northeast of the settlement of Repulse Bay.

History:

Prospecting permits 177 to 199 were issued to Aquitaine Company of Canada Limited on 1 April 1970.

Description:

A sequence of deformed Penrhyn Group metasediments underlies the triangular area extending from the east coast of Melville Peninsula, between Cape Wilson and Cape Germain, to its apex near the centre of the Rae Isthmus. The Penrhyn Group crystalline limestone (unit 13, op. cit.), pure and impure quartzite (unit 14, op. cit.), meta-argillite, meta-greywacke and derived schists and gneisses (unit 15, op. cit.) are preserved in a northeasterly-plunging synclinorium. The limestone is fine- to coarse-grained, ranges from thinly-laminated to thick-bedded to massive and exhibits tight isoclinal folds with boudinaged quartzite beds, pegmatite dykes and flow lines around broken dykes and sills. The quartzite is fine- to medium-grained and in beds commonly less than one foot but up to 500 feet thick.

In the central part of the synclinorium, the rocks have been deformed into a series of dome-like structures consisting of oval-to-elongate cores of plutonic rock ranging in composition from granite to granodiorite, overlain and bordered by paragneiss, quartzite and crystalline limestone of the Penrhyn Group, and migmatite (unit 11, op. cit.). Small bodies of massive granite and granodiorite (unit 12, op. cit.) and veins and sills of pegmatite intrude the domes. The metasedimentary layering curls around the noses of the domes, synformal between and antiformal over the plutons. The foliation in the plutons is in most cases conformable with the bedding and gneissic structure in the metasediments.

Current Work and Results:

In 1970 airborne geophysical surveys, reconnaissance geological mapping and prospecting were performed. Geoterrex Limited flew 9,517 miles of aeromagnetic survey and 8,219 miles of radiometric survey over lines spaced 2,800 feet and 1,400 feet apart. Seigel Associates Limited flew 3,374 miles of electromagnetometer and magnetometer surveys on lines at one mile intervals. Seven areas were re flown at one-quarter-to one-half-mile line spacing.

The magnetic survey reflected the major north-easterly trend and complex pattern of the geology, and outlined numerous iron-formation trends in the metasediments. Two radiometric

anomalies were detected in the northern part of prospecting permit 197 and one in the southern half of prospecting permit 180.

The electromagnetic survey outlined 115 northeast-trending conductive zones and 513 single-line anomalies. A program of surface geophysics was recommended for 15 of the conductors and 23 of the single-line anomalies.

MELVILLE PENINSULA IRON DEPOSITS
Borealis Exploration Limited
940 - 8th Avenue Southwest,
Calgary, Alberta.

Iron
47 A/4,5,6; B/2,7
(68°29'N, 83°00'W
and 68°17'N, 85°25'W)

References:

Heywood (1967); Wilson and Underhill (1971)

Property:

Prospecting permit 58	47 A/5
Prospecting permit 59	47 A/6
Prospecting permit 83	47 B/2
6 IAN claims	47 A/4
24 DON, 46 JEF, and 55 LIZ claims	47 A/6
29 AL, 14 JAC and 10 JAY claims	47 B/2
21 ALE, 11 DUG, 20 LIN and 15 RIK claims	47 B/7

Location:

The prospecting permits 58 and 59 extended from the east coast of Melville Peninsula at Roche Bay, 40 miles southwest of the settlement of Hall Beach, along the southern shore of the Kingora River to a point 19 miles west of Sarcpa Lake. The eastern claim groups, DIN, IAN, JEF and LIZ, are along an axis subparallel to and three to four miles northwest of a 25-mile long northeast-trending reach of the Ayergotadlik River. The IAN claims to the southwest are 18 miles from the DON, 24 miles from the JEF and 28 miles from the LIZ claims which in turn are three miles west-northwest of Roche Bay.

Permit 83, centred 12 miles south-southeast of the radio towers at the Mackar Inlet Distant Early Warning Line Station, extends from the west coast of Melville Peninsula

between Barnston Point and Erlandson Bay for 24 miles. The AL, JAC and JAY claim groups, eight miles southeast of the radio towers and within the permit area, are eight miles southwest of the DUG and RIK claims and 13 miles south-southwest of the ALE and LIN claims.

History:

The occurrences of iron formation on Melville Peninsula were discovered in 1964 by the Geological Survey of Canada during the course of the helicopter reconnaissance "Operation Wager". Subsequent to the publication of Heywood's paper in 1967, Borealis Exploration Limited applied for and were granted prospecting permits 58 and 59. During the 1968 prospecting program on the Peninsula, the western occurrences of iron-formation were examined and staked as the JAC and JAY claims. In the spring of 1969, Borealis Exploration Limited acquired prospecting permit 83 in the west-central part of the Peninsula. The 1969 prospecting program resulted in the discovery of the other iron deposits to the south of the eastern permits and the north of the western permit. These were staked as the IAN, DUG and LIN claims. In 1970 the claim holdings of the company were increased through the addition of the AL, ALE, DON, JEF, LIZ and RIK claims.

Description:

The central segment of the Melville Peninsula is underlain by two main northeast-trending belts and smaller occurrences of the Prince Albert Group (Heywood, 1967) of metamorphosed sediments and volcanics. These rock units occur within an assemblage of layered gneiss, paragneiss and schist (unit 9, op. cit.), granitic gneiss (unit 10, op. cit.), migmatite (unit 11, op. cit.) and intrusive granite (unit 12, op. cit.). A few small sills and dykes of peridotite, pyroxenite and their serpentized equivalent (unit 8a, op. cit.) occur within the Prince Albert Group and the granitic assemblage in the area west of Parry Bay. Northwest- to north-northwest-trending diabase dykes (unit 17, op. cit.) intrude the various rock units.

The main western belt of Prince Albert Group rocks extends northeasterly for forty miles from the coast near Erlandson Bay and consists of four irregularly shaped bodies once part of a continuous unit now dissected by north-northwest-trending faults and granitic intrusions.

The main constituent of the belt and oldest member of the Prince Albert Group is a sequence of greenstone,

greenschist and amphibolite, derived from intermediate-to-basic volcanic rocks, with minor undifferentiated acid volcanic and sedimentary rocks (unit 1, op. cit.). Associated with the metamorphosed basic volcanics and locally conformable with quartzite and micaceous garnetiferous paragneiss is magnetite-quartz iron-formation with minor specular hematite (unit 4, op. cit.). Granite intrudes the iron-formation and blocks of the formation up to 40 feet long occur as inclusions in the intrusive rock.

The four- to eight-mile wide eastern belt extends south-southwesterly for 50 miles from the east coast at Parry Bay to within 20 miles of the west coast. The main constituent of the southern half of this belt and a less important unit in the mainly metavolcanic northern half are undifferentiated metasediments including massive-to-bedded quartzite, impure quartzite, phyllite, sericite schist, quartz-mica schist, quartz-garnet-actinolite schist, paragneiss and well-layered mafic gneiss (unit 2, op. cit.). The iron-formation occurs only in the northern half of the belt in contact with a variety of rock types which suggests that the base of the iron-formation rests unconformably on the metamorphosed sediments and volcanics. Similar rocks lie conformably on the iron-formation and all are interfolded.

Current Work and Results:

During the 1968 to 1970 field seasons Borealis Exploration Limited carried out reconnaissance airborne and ground magnetometer surveys, reconnaissance and detailed geological mapping programs as well as channel and bulk sampling of the iron-formation occurrences. Nine deposits were delineated in the western part of Melville Peninsula and five in the eastern part.

On the eastern Melville Peninsula, several steeply-dipping-to-vertical bands of iron-formation occur in a folded zone 4 miles wide and 30 miles long. Within this length, four zones, the A (68°28'30"N, 82°43'30"W), B (68°27'54"N, 82°44'24"W), C (68°23'30"N, 82°52'06"W) and D (68°21'00"N, 82°57'54"W) deposits, each at least 400 feet wide and over 4,000 feet long have been outlined. A similar zone, the E deposit (68°09'12"N, 83°21'18"W), was discovered in 1969 in a smaller southwest-trending belt of Prince Albert Group metasediments four miles southeast of the main eastern belt (IAN claim group). The thinly laminated-to-massive iron-formation consists of alternating laminae of magnetite or quartz-magnetite and fine-grained quartzite one millimeter to ten centimeters thick with some magnetite-rich layers up to ten feet wide.

The beds of iron-formation in the western part of the Peninsula have been deformed into a complex series of folds. The Borealis 1,2, and 3 (West Limb) deposits are part of the western limb of a major anticline-syncline pair five to six miles long and two to three miles wide. The folds plunge to the southwest where the limbs are tightly appressed and the axial plane attitude changes from vertical to easterly-dipping. The Borealis 1 deposit (68°13'06"N, 85°29'46"W) has an average width of 1,000 feet over a north-northeast strike length of 3,200 feet. Dips average 60 to 78 degrees west and two sets of steeply down-dip plunging folds are responsible for the thickening of the limb of the iron-formation. The Borealis 1 Northern Extension (68°13'36"N, 85°29'18"W) deposit is continuous with the Borealis 1 deposit but thins to an average width of 300 feet over its 2,750-foot length. The Borealis 2 deposit (68°12'18"N, 85°29'45"W) is offset sinistrally 800 feet, at its north end, from the Borealis 1 deposit by a vertical southeast-trending fault and dexterally 600 feet at its south end from the Borealis 3 West Limb deposit by a vertical east-southeast-trending fault. The 800-foot wide and 4,500-foot long deposit is characterized by steeply plunging small folds trending north. Magnetite-quartz iron-formation constitutes 60 per cent of the Borealis 1 deposit's surface exposure and is the main component of the Borealis 2 deposit. The Borealis 3 East Limb (68°11'36"N, 85°29'27"W) and West Limb (68°11'36"N, 85°30'33"W) deposits are near the unexposed nose of the plunging anticline. Both of the near-vertical, north-northeast-trending deposits have been traced for 4,500 feet, the west limb averaging 300 feet in width and the east limb 250 feet. Hematite is the principal oxide mineral in the west limb while an undetermined proportion of magnetite and hematite comprises the iron oxide portion of the east limb.

The Borealis 4 deposit (68°17'48"N, 85°17'30"W), consists of a 1,600-foot wide by 7,000-foot long S-shaped fold plunging at 70 to 85 degrees to the southwest. The deposit averages 900 feet in width and is 3,800 feet long. The main iron oxide in the formation is relatively coarse-grained magnetite which has been slightly recrystallized during the nearby intrusion of granite.

The Borealis 5 deposits are part of an isoclinal fold plunging steeply to the north. The iron-formation, mainly magnetite-quartz, outcrops over 10,000 feet and is up to 1,800 feet thick. The outline of the deposit is irregular due to folding and refolding along steeply plunging axes and faulting along two major vertical planes. The faults are the northern and southern limits of the Borealis 5

Central Section (68°22'00"N, 85°17'39"W), the main deposit. Two smaller deposits, the Northern Section (68°22'30"N, 85°16'57"W), and the Southern Section (68°21'48"N, 85°18'48"W) constitute the remainder of the iron-formation outcrops.

The chip and bulk samples of iron-formation collected in 1968 and 1969 were submitted to metallurgical tests and the results (see table) indicate that a magnetite concentrate with 68 to 70 per cent soluble iron can be produced from the deposits on Melville Peninsula at a grind of 85 to 90 per cent -325 Mesh without the use of flotation cells. Samples of the Davis Tube Test concentrate were assayed and the absence of undesirable elements was indicated.

The extent and tonnage of the Melville Peninsula iron deposits given in the following table are calculated using a tonnage factor of 10.5 cubic feet per long ton and assuming the depth of the deposit to be equal to twice its width of up to 1,600 feet.

<u>Deposit</u>	<u>Length</u> (feet)	<u>Average width</u> (feet)	<u>Depth</u> (feet)	<u>Long tons</u> (feet)
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The eastern Melville Peninsula deposits

A	4,400	435	970	158.3
B	6,000	520	1,040	308.9
C	14,000	400	800	426.4
D	5,000	410	820	159.9
E	2,700	410	820	<u>86.1</u>
Total				1,139.6

The Western Melville Peninsula deposits

1	4,000	1,000	1,600	640.0
1 Northern ext.	2,750	300	600	46.8
2	4,650	800	1,600	548.8
3 West limb	4,500	300	600	77.4
3 East limb	4,500	250	500	53.5
4	3,850	900	1,600	579.2
5 Northern sect.	1,000	600	1,200	85.2
5 Central sect.	4,700	1,300	1,600	990.4
5 Southern sect.	4,200	600	1,200	<u>331.3</u>
Total				3,352.6

RESULTS OF THE METALLURGICAL TESTWORK ON SAMPLES FROM THE MELVILLE PENINSULA IRON DEPOSITS

<u>Section</u>	<u>Deposit</u>	<u>Length of Section (feet)</u>	<u>Crude Ore</u>		<u>%Weight</u>	<u>Davis Tube Concentrate</u>		<u>Grind %</u>	
			<u>%Soluble</u>	<u>%Magnetic</u>		<u>Concentration</u>	<u>%Iron</u>	<u>-325 Mesh</u>	<u>Recovery</u>
			<u>Iron</u>	<u>Iron</u>		<u>Ratio</u>			

Eastern Melville Peninsula deposits:

A	A	226	29.3	27.4	40.7	2.5	67.3	93.5	85
Bulk	A	10000 lb	28.0	25.6	36.7	---	69.8	91.5	--
B	B	660	21.9	19.1	28.4	3.5	67.3	87.3	86
D	D	450	27.1	24.9	37.9	2.6	65.7	91.9	86
E	E	360	34.5	33.1	46.8	---	70.7	95.9	86.5

Western Melville Peninsula deposits:

Z	1	1000	38.3	28.0	41.3	2.4	67.8	73.1	96
R	1	940	36.4	27.4	39.7	---	69.1	75.4	87.6
S	1	700	35.6	33.1	47.7	---	69.4	93.0	87
T	1	1190	36.4	32.0	46.2	---	69.4	87.8	87.6
Bulk	1	---	40.3	38.5	56.0	---	68.7	95.7	87.4
Y	2	600	32.5	30.0	44.2	---	67.9	92.2	88.3
X	4	870	38.0	36.6	53.6	---	68.3	96.4	90.4
V	5 central	800	29.1	26.3	37.5	---	70.3	90.6	84.8
W	5 central	780	34.3	31.2	44.6	---	70.1	91.0	81

PROSPECTING PERMIT 83 AND ADJACENT AREAS	Copper, Silver, Lead,
Borealis Exploration Limited,	Zinc
940 - 8th Avenue Southwest,	47 B/1,2,7,8
Calgary, Alberta.	(68°15'N, 85°00'W)

Reference:

Heywood (1967)

Property:

Prospecting permit 83

47 B/2

Location:

Prospecting permit 83, centred 12 miles south-southeast of the radio towers at the Mackar Inlet Distant Early Warning Line Station, extends inland for 24 miles from the west coast of Melville Peninsula between Barnston Point and Erlandson Bay. The adjacent areas covered by the prospecting parties extend north from the permit area to the Kingora and Mineau Rivers and east to the general longitude of Souter Lake.

History:

Borealis Exploration Limited acquired prospecting permit 83 in early 1969 to cover iron deposits and numerous gossan zones discovered by W.W. Heywood in 1964 and prospected by the company in 1968. The permit expired in 1972.

Description:

Melville Peninsula consists of a sequence of moderately-to-intensely folded, metamorphosed and granitized sedimentary and volcanic rocks locally intruded by granite and pegmatite. The metasedimentary and metavolcanic rocks of the Prince Albert Group occur in the area as two major northeast-trending belts.

The western belt consists of four irregularly shaped bodies, the largest of which is 6 miles wide and 16 miles long, separated by faults and granitic intrusions. The main constituents of this belt are greenstone, greenschist and amphibolite which, together with minor undifferentiated acid volcanic and sedimentary rocks, form the lower member (unit 1, Heywood, 1967) of the Prince Albert Group. Bands of iron-formation (unit 4, op. cit.) occur in the central portion of this belt.

The eastern belt outcrops in the southeast corner of the area around Souter Lake and consists mainly of un-differentiated metasedimentary rocks including quartzite, phyllite, schist and paragneiss (unit 2, op. cit.). This belt extends to the northeast where the metavolcanics and iron-formation predominate.

The north-northeast trend of the Prince Albert Group belts is reflected in the assemblage of gneiss and migmatites which separates them. Paragneiss and schist (unit 9b, op. cit.) occur as small elongate bodies in the northwestern corner of the area and as a five- to eight-mile wide belt south and east of the metavolcanic belt. Granitic gneiss (unit 10, op. cit.) is common in the northwestern part of the area prospected and south of the northern portion of the meta-volcanic belt.

Intrusive granite and allied rocks (unit 12, op. cit.) outcrop as three large irregular bodies. The eastern intrusion occurs within granitic gneiss north of the metasedimentary belt. A second granitic mass extends west from the southeast corner of the area. The third intrusion bisects the metavolcanic belt in its central region and extends southwest on its flanks.

In the southwest corner of the map area, about Folster Lake, the above units are covered by a blanket of younger quartzite (unit 16, op. cit.) while to the northeast, they are intruded by a series of southeast-trending diabase dykes (unit 17, op. cit.).

A number of small serpentinite and peridotite (unit 8a, op. cit.) outcrops occur in the northwestern part of the area associated with the metavolcanics.

Current Work and Results:

During 1969 thirty-three sulphide occurrences were examined and sampled in conjunction with the mapping and sampling of the West Melville Peninsula iron deposits. An airborne radiometric survey was flown over the outcrops of younger quartzite about Folster Lake in the southwest corner of the permit area but no significant radiometric anomalies were detected. In 1970 six of the sulphide occurrences sampled in 1969 were mapped at scales of 50, 100 or 200 feet to the inch and surveyed with an electromagnetic unit. Thirteen new gossan zones were also examined and sampled at this time.

The majority of the gossan zones are quartz-rich sections of the metavolcanic belt containing massive-to-disseminated pyrite, pyrrhotite and minor chalcopyrite and bornite. The sulphide-rich zones in the quartzite outcrops to the southwest were also examined. The samples from all the occurrences except those resampled in 1970 assayed less than .01 ounces of gold per ton, .2 ounces of silver per ton, .5 per cent copper, .02 per cent zinc, .1 per cent lead and .01 per cent nickel.

One of the six gossan zones re-examined in 1970 is 13 miles east of Mackar Inlet at 68°19'48"N, and 85°11'42"W. Massive-to-nodular pyrite, pyrrhotite and locally, chalcopyrite, occur in a rusty-weathering bed 15 to 25 feet wide which outcrops intermittently strikes north-northeast and dips 75 degrees west. An electromagnetic survey along three lines indicated that a very strong (60 to 80 per cent of the primary field) anomaly corresponds to the pyrite-rich zone. The highest copper value encountered during the 1969 and 1970 sampling was .42 per cent.

A second zone (68°13'27"N, 85°31'56"W), six miles southeast of the radio towers at Mackar Inlet, consists of a north-striking bed of quartz-chlorite greenstones, up to 65 feet thick, within an assemblage of fine-grained greenstone. A selected grab sample taken in 1969 assayed .2 per cent copper and .03 per cent nickel, but the 1970 samples all assayed less than .02 per cent copper. No anomalies were detected during the electromagnetometer survey over the gossan zone.

A grab sample collected in 1969 from a gossan zone six and one half miles east of Selkirk Bay on the JAC 10 and 11 claims (68°12'30"N, 85°30'27"W), covering the iron deposit, assayed 11.64 ounces per ton of silver, 15.45 per cent zinc, 8.05 per cent lead and 0.13 per cent copper. The 1970 work indicated that the high assay values are due to a very small concentration of silver-rich galena within a minor vein in an area underlain by greenstone and quartz-mica schist. Diabase dykes up to 20 feet thick intrude the rock sequence to the north. The electromagnetic survey failed to indicate the presence of any significant conductive bodies other than the Borealis 2 iron deposit to the east.

Five and one half miles east of Selkirk Bay, the central portion (68°12'24"N, 85°31'42"W), of a 1,000-foot by 200-foot rusty-weathering zone in a sequence of northerly-striking, steeply-dipping, quartzose greenschist consists of disseminated pyrite, pyrrhotite, chalcopyrite and bornite. A grab sample from a small pit blasted in the zone in 1970

assayed 1.39 per cent copper and .049 per cent nickel. The best two-foot section of a ten-foot channel sample collected at the time returned an assay of .256 per cent copper.

A grab sample collected in 1969 from a rusty zone (68°12'06"N, 85°27'54"W) at the contact of magnetite-quartz iron-formation with quartz schist eight miles east of Selkirk Bay assayed .38 per cent copper. A slight electromagnetic anomaly (20 per cent negative deviation of the primary field) coincides with the contact.

The sixth gossan (68°12'24"N, 85°16'24"W) re-examined in 1970 is 13 miles east of Selkirk Bay. The rusty zone occurs in quartz-feldspar-biotite gneiss and layered amphibolite intruded by granite to the west. The zone, 2 to 10 feet wide and 500 feet long, consists of a pyrite-bearing gneiss band with some pyrrhotite and local concentrations of chalcopyrite and bornite. The electromagnetic survey gave a weak response over the gossan zone, samples of which assayed up to .3 per cent copper.

BAFFIN ISLAND

SOUTHERN BAFFIN ISLAND

RADIOACTIVE SHOWINGS
The Kalbluna Syndicate
comprising:-

Uranium, Thorium
25 M, N; 26 E;
36 A,B,C

- a) Amadjuak Mines Limited (45%)
a holding company for
Reactor Uranium Mines Limited
1015, 159 Bay Street,
Toronto, Ontario.
- b) Borealis Exploration Limited (55%)
940 - 8th Avenue Southwest,
Calgary, Alberta.

References:

Blackadar (1959, 1962, 1967a, 1967b)

Property:

Prospecting permit 74	25 M/9
Prospecting permit 75	25 M/10
Prospecting permit 76	26 E/11
Prospecting permit 77	26 E/15
Prospecting permit 78	36 A/13
Prospecting permit 79	36 B/5
Prospecting permit 80	36 B/11
Prospecting permit 81	36 B/16
Prospecting permit 82	36 C/8
216 FOX and 108 MIKE claims	25 N/9,16
18 DON, 5 PAT and 12 TIM claims	36 C/8

Location:

The prospecting permits form four groups within the part of Baffin Island south of Nettilling Lake and south-west of Cumberland Sound. The northern group (65°45'N, 71°00'W) consists of prospecting permits 76 and 77 to the east of Amadjuak River and south of Burwash Bay. The southern group, (63°37'30"N, 70°30'W) prospecting permits 74 and 75, extends west from the head of Livingston River to within eight miles of the head of Blandford Bay. Prospecting permits 78 and 81, the central group (64°52'30"N, 74°00'W) extend east for 30 miles from the shore of Shukbuk Bay between Keeka Lake to the north and Shugha Bay to the south. The largest group,

(64°30'N, 75°37'30"W) prospecting permits 79, 80 and 82, is southwest of the central group along the north shore of Hudson Strait, north and west of Andrew Gordon Bay.

The FOX and MIKE claim groups (63°42'48"N, 68°20'00"W) cover the base of the Laird Peninsula and extends east from the settlement of Frobisher Bay to north of Burton Bay. The DON group (64°16'48"N, 76°23'24"W) is at the tip of the peninsula extending into Hudson Strait between Negus and Parketuk Bays, five to six miles northeast of the settlement of Cape Dorset. A further five miles to the northeast, the PAT claim group (64°19'00"N, 76°14'30"W) is on the north shore of the peninsula south of Pudla Inlet and east of the Shemia Islands. The TIM group (64°28'24"N, 76°03'18"W) is six miles northwest of Catherine Bay and 28 miles northeast of Cape Dorset.

History:

Interest in the uranium possibilities of Southern Baffin Island was initiated by Mr. Ross Toms who submitted a rock specimen to Mr. A.W. Stollery which assayed 5.65 per cent uranium oxide. In 1967 Snowdrake Limited conducted an airborne radioactivity prospecting program under the direction of Mr. Toms, in the region north and west of Frobisher Bay. The 1075 ROSS claims were staked at this time and examined by Messrs. Pearson and Carlson. None of the areas investigated on the ground were of economic significance and the ROSS claims were allowed to lapse.

The Kalbluna Syndicate was formed in 1969 to carry out mineral exploration programs on Southern Baffin Island. In the spring of that year Amadjuak Mines Limited acquired prospecting permits 74 to 77 and Borealis Exploration Limited acquired prospecting permits 78 to 82. The central part of the area previously covered by ROSS claims was restaked as the FOX and MIKE claims. The DON, FAT and TIM claims were staked in April 1970 and are held in trust for the Kalbluna Syndicate by Borealis Exploration Limited.

All but three of the prospecting permits were relinquished in 1970, while the prospecting permits 79, 80 and 82 were relinquished in 1971. The MIKE and FOX claims lapsed in 1970.

Description:

The rocks of southern Baffin Island comprise a heterogeneous, complexly-folded succession of granite, migmatite and quartz-feldspar gneiss. In some areas bands of

crystalline limestone, graphitic schist, quartzite and mafic schist and gneiss are interbedded with the granitic gneiss and migmatite.

The northern group of two permits is underlain by fine-to-very-coarse-grained and locally slightly foliated granite (unit 13, Blackadar, 1967b), which is particularly abundant north and east of Amajuak Lake.

The southern group of permits, east of Blandford Bay, are in gneissic terrain with migmatite (unit 11, op. cit.) predominating in the southwest corner, quartz-feldspar and biotite-quartz-feldspar gneiss (units 3 and 3a, op. cit.) in the northwest corner and gneissic granite (unit 12, op. cit.) to the northwest. A six to eight-mile wide band of garnet-biotite-feldspar gneiss (unit 7, op. cit.), a minor band of rusty paragneiss (unit 6, op. cit.) and a narrow layer of crystalline limestone (unit 9, op. cit.) trend northwest in the southeastern and central parts of the permit areas. Further to the east, near Frobisher Bay, the FOX and MIKE group cover part of a north-trending belt of quartz-feldspar gneiss.

The geology of the central permit group is similar to the above, quartz-feldspar gneiss and gneissic granite predominating with a band of garnet-biotite-quartz-feldspar gneiss, crystalline limestone, and quartzite (unit 10, op. cit.) trending west to northwest in gneissic granite and migmatite. The West Foxe Islands, in the southeastern corner of the area, are underlain by an assemblage of dark, well-cleaved biotite-hornblende schists of probably volcanic origin (unit 1, op. cit.).

Current Work and Results:

The 1969 field program was based on information obtained from the 1967 airborne radioactivity survey conducted by Snowdrake Limited and from the report by Mr. W.J. Pearson on the ground follow-up work. A gamma-ray spectrometer installed in a helicopter was used to locate areas of higher than normal radioactivity showings which were then traversed and sampled by field parties. The more interesting radioactive showings were mapped by chain and compass methods. A drilling program designed to obtain unweathered rock samples was abandoned due to constantly recurring mechanical problems.

Of the seven anomalies investigated, five are within the western block of permits, one is just north of these permits and the seventh is 70 miles west of Frobisher Bay on the southern group of permits.

Five hundred feet from the south shore of Pudla Inlet and 11 miles northeast of Cape Dorset (PAT claim group, 64°19'00"N, 76°14'30"W), uranium and thorium minerals occur in an east-striking, north-dipping band of coarse-grained feldspathic quartzite and in adjacent sills of granite pegmatite. The radioactive minerals occur in six-inch to ten-foot wide layers within a 1,600-foot long zone. Sixteen surface samples selected from the most radioactive portions of the showing assayed up to .12 per cent uranium oxide and .13 per cent thorium oxide and averaged .075 per cent uranium oxide and .055 per cent thorium oxide.

Two short holes drilled on the anomaly intersected 4 inches and 3.9 feet of thorium-bearing sandstone.

One thousand feet east of this first anomaly, uranium minerals occur in coarse-grained granite gneiss outcropping over an area 2,000 feet long and 1,000 feet wide. Ten surface samples blasted from the radioactive outcrops assayed .02 to .03 per cent uranium oxide.

On the DON claim group (64°16'48"N, 76°23'24"W) radioactivity is also associated with granite gneiss over a one square-mile area. The one grab sample selected assayed .01 per cent uranium oxide and .07 thorium oxide.

The most interesting uranium occurrence investigated is located on the TIM group (64°28'24"N, 76°03'18"W), 28 miles northeast of Cape Dorset. The 1,900-foot long by 50- to 250-foot wide radioactive area, underlain by biotite paragneiss with numerous pegmatite sills, pinches out to the east and extends to the west under overburden. Twenty-five selected samples from the anomaly assayed up to .340 per cent uranium oxide and .060 per cent thorium oxide, averaging .058 per cent uranium oxide and .027 thorium oxide. A ground scintillometer survey outlined eight areas of concentration greater than 500 parts per million combined uranium and thorium oxide.

A four-mile wide and 16-mile long northwest-striking area on the northeast coast of Andrew Gordon Bay (64°32'N, 75°24'W) is underlain by granite and granitic gneiss intruded by numerous radioactive pegmatite dykes. The dykes vary from six inches to ten feet wide and from ten to several hundred feet long. One sample collected from a 20-foot long and six-inch wide biotite-granite pegmatite dyke assayed .58 per cent uranium oxide and .07 per cent thorium oxide. All of the other sixteen samples collected assayed .02 per cent uranium oxide or less.

A band of radioactive, rusty-weathering, biotite-granite gneiss three feet wide and 100 feet long occurs 84 miles northeast of Cape Dorset, at 65°03'N and 74°36'W. Two samples collected from the most radioactive exposure of this anomaly assayed less than .01 per cent uranium oxide and .03 and .07 per cent thorium oxide.

The easternmost anomaly investigated in on permit 75 at 63°42'N and 70°33'W. Radioactive granite pegmatite occurs as sills and dykes in rusty-weathering biotite paragneiss and diopsidic marble. The pegmatites were traced for 2.5 miles parallel to the strike and vary in width from 10 to 300 feet. Fifty-eight samples were collected in the area and all assayed less than .01 per cent uranium oxide and .01 to .04 per cent thorium oxide.

EQE BAY IRON DEPOSITS

The Patino Mining Corporation
1401, 7 King Street East,
Toronto, Ontario.

Iron

37 C/9

(69°40'24"N, 76°48'20"W)

Terra Nova Explorations Limited
a subsidiary of
Terra Nova Properties Limited
65 Sainte Anne Street,
Quebec, Quebec.

References:

Blackadar (1958); Jackson (1969)

Property:

36 AL, 36 BEN, 36 BOB, 36 LAC, 21 MAN
and 36 VIC claims

37 C/9

Location:

The claim group, on west-central Baffin Island at the northeast end of Foxe Basin, trends east-northeast from the southern shore of Grant-Suttie Bay to within one mile of the western shore of Ege Bay.

History:

The presence of iron-formation at Ege Bay and Isortoq Fiord, 15 miles to the northwest, was first reported by R.G. Blackadar in 1958. The geologists of the Geological

Survey of Canada "Operation Bylot" visited the Ege Bay and Isortoq Fiord area in 1968 and reported numerous iron-formation occurrences (Jackson, 1969). In late 1968 the aeromagnetic coverage for the area was released to the public by the Federal government. The Ege Bay map showed a very high aeromagnetic anomaly centred over the known iron-formation occurrences. The Patino Mining Corporation Limited staked the 201 claim group to cover the anomaly during the 1968-69 winter. Subsequent to the 1969 field work, all but 3 AL, 24 BEN, 21 BOB, 18 IAC, 7 MAN and 19 VIC claims were allowed to lapse.

Description:

Metamorphosed and intensely deformed volcanic and sedimentary rocks occur as remnants in granitoid migmatites and gneiss throughout most of north-central Baffin Island (Jackson, 1969). The 1969 mapping by the Patino Mining Corporation Limited indicates that the iron deposits at Ege Bay occur in a linear zone within such a metavolcanic and metasedimentary remnant. The 9,500-foot thick sequence of massive intermediate volcanic rocks enclosing the iron-formation is intruded to the north by massive granodiorite and bounded to the south by a metasedimentary sequence. The metamorphosed rocks trend northeast and dip steeply south. To the southeast the phyllites and metagreywackes of the metasedimentary sequence grade eastwards into mica-garnet schists.

Current Work and Results:

The 1969 exploration program on the Ege Bay claims consisted of a geological survey, magnetic, gravity and radiometric surveys, chip sampling and diamond drilling of the iron-formation occurrences and preliminary metallurgical testwork on the samples from the four main deposits. A total of 76 chip samples with a combined length of 6,775 linear feet was collected and 20 holes totalling 913 feet were completed. The magnetic and gravity surveys, over 85.5 and 3.5 miles of line respectively, were undertaken to determine the extent of the iron-formation under overburden. The radiometric survey over 26,000 feet of line failed to detect the presence of radioactive minerals on the claims.

Nine important occurrences of iron-formation and six lesser showings were investigated in 1969. The Zone 1 deposit (69°42'16"N, 76°44'30"W) outcrops over an area 400 feet by 6,500 feet and consists of .1- to .5-inch bands of magnetite-hematite and quartz. Massive specular hematite

with jasper bands occur locally. On the north side of the deposit, a gully bordered by sheared green volcanics forms the footwall. The hanging wall consists of a massive green volcanic with local outcrops of quartz-chip conglomerate.

Zone 1-A (69°43'28"N, 76°41'53"W), the eastward continuation of Zone 1, is marked by a few hematite outcrops and blocky rubble over a length of 6,000 feet and a width of up to 200 feet along the south side of the footwall gully. The outcrops consist of specular hematite bands alternating with red jasper bands.

Zone 2 deposit (69°41'35"N, 76°48'47"W) has an exposed length of 1,900 feet and width of 600 feet but the magnetic and gravity surveys have indicated that the deposit extends for an additional 2,500 feet east to the western shore of a large lake within the claim group. A similar set of anomalies extends west for 2,000 feet from the Zone 1 deposit to the eastern shore of the lake. The Zone 2 deposit consists of alternating magnetite and jasper bands with local concentration of hematite. Some massive magnetite bands are over one foot wide.

Zone 3 deposit (69°41'25"N, 76°48'18"W), 1,000 feet to the southeast, consists of one main mass 200 to 500 feet wide and 2,500 feet long and a narrow 100-foot wide and 2,100-foot long western extension. The iron-formation consist of alternating bands of fine magnetite and iron silicate between a volcanic footwall and an iron-silicate hanging wall.

This deposit forms the north limb of a syncline, the south limb of which has been folded into the Cake Hill occurrence (69°41'05"N, 76°48'58"W) 2,000 feet to the southwest. The Cake Hill outcrop, 1,100 feet by 700 feet at its base and rising to a height of 540 feet, is a massive hill consisting of a core of good grade oxide and silicate iron-formation surrounded by lean silicate iron-formation.

The Zone 4 deposit (69°41'09"N, 76°50'17"W) starts 3,500 feet along strike to the west of the Zone 2 deposit and is marked by intermittent outcrops for a length of 1,900 feet and a maximum width of 600 feet. The holes drilled on the Zone 4 outcrops indicate that the deposit consists of massive magnetite with minor fine quartz bands. The magnetic survey outlined a major 2,700-foot long anomaly coincident with the deposit.

The magnetometer survey also indicated that Zone 5 (69°40'58"N, 76°51'46"W) extends for about 4,000 feet. Exposure of the iron-formation is limited to two good-grade outcrops with a total width of 100 feet. The Zone 4 and 5 occurrences occur at the northeast and southwest contacts of a southeast-trending granitic intrusion in the volcanics in the northern part of the claim group.

Scattered outcrops of silicate and oxide iron-formation mark the southwestward continuation of the Zone 3 deposit and Cake Hill occurrence. The Zone 6 (69°40'43"N, 76°49'27"W) iron-formation is friable with finely laminated iron oxide.

A small hill on the south shore of Grant-Suttie Bay consists of massive banded magnetite iron-formation. The formation of this Zone 7 (69°41'31"N, 76°55'43"W) has been partly assimilated, along with the volcanic country rock, by the intrusive granite to the north.

The chip samples collected from the Zone 1,2,3, and 4 deposits were subjected to metallurgical tests, the results of which are given in the accompanying table. The tests indicate that a concentrate containing 67 per cent iron and less than one per cent impurities can be obtained by fine grinding and magnetic separation.

The extent and tonnage of the Ege Bay iron deposits given in the following table were calculated assuming pit wall slopes of -50 degrees and long tonnage conversion factors of 10 for ore and 13.5 for andesite wall rock:

<u>Deposit</u>	<u>Length</u> (feet)	<u>Width</u> (feet)	Minimum Mineable <u>Depth</u> (feet)	<u>Long Tons</u> (millions)	<u>Waste-to-</u> <u>Ore Ratio</u>
Zone 1	6,500	400	600	156	0.93 to 1.0
Zone 2	2,500	500	900	112	1.12 to 1.0
Zone 3	2,000	350	550	38	0.93 to 1.0
Zone 4	2,700	350	600	57	1.07 to 1.0
				Total 363	

RESULTS OF THE METALLURGICAL TESTWORK ON SAMPLES FROM THE EQE BAY IRON DEPOSITS

<u>Deposit</u>	<u>Length of Section (feet)</u>	<u>Crude Ore</u>		<u>Davis Tube Concentrate</u>		<u>Grind % -325 Mesh</u>
		<u>% Soluble Iron</u>	<u>% Magnetic Iron</u>	<u>% Weight</u>	<u>% Iron Recovery</u>	
Zone 1	560	32.1	28.3	42.7	67.1	96.0
Zone 3	554	32.8	30.1	45.3	66.5	99.4
Zone 2	400*					
Zone 4	260*	45.3	42.6	63.2	67.56	87.2

* A composite sample, based on equivalent weight per foot, was prepared from Zone 2 and Zone 4 samples and the results given in the table apply to this composite sample.

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STRATHCONA PROJECT
King Resources Limited,
1300 Elveden House,
Calgary, Alberta.

Lead, Zinc, Copper,
Silver
37G, 38B, 48A, 48B
(72°30'N, 82°00'W)

References:

Lemon and Blackadar (1963); Blackadar (1965); Blackadar et al. (1968); Jackson (1969); Trettin (1969); Blackadar (1970)

Property:

Prospecting permit 84	48 A/7
Prospecting permit 85	48 A/10
Prospecting permit 86	48 A/11
Prospecting permit 87	48 A/12
Prospecting permit 88	48 A/13
Prospecting permit 89	48 B/16
36 MI, 36 M37, 72 M72, 36 M73, 108 M74, and 6 MC claims	48 A/6
62 DEE claims	48 A/11
20 BEE claims	48 A/13
180 W1 claims	48 A/14

Location:

The Strathcona Project studies covered a 20- to 25-mile wide belt trending southeast from Adams and Strathcona Sounds to Milne Inlet. In 1970 the area extending southeast from Milne Inlet to Paquet Bay was also studied but no ground was acquired.

History:

The prospecting permits were acquired by King Resources in early 1969. The K, M and W1 claims were staked for King Resources Limited after the 1969 exploration program. The BEE and DEE claims were added in October 1970.

Description:

The Strathcona Project covered the central part of a graben trending southeast from Admiralty Inlet across the Borden Peninsula. A fault zone extends east from Baillarge Bay to the Elwyn Ice Cap, then southeast along the northeastern shore of Ragged Island to the head of Paquet Bay.

A second fault, to the southwest, extends east-southeast from Fabricius Fiord to Koluktoo Bay and the head of Paquet Bay.

The graben contains an extensive sequence of horizontal-to-gently dipping volcanic and sedimentary rocks of the Uluksan and Egalulik Groups in contact to the south and southeast with granitic and gneissic rocks of the basement complex (unit A, Blackadar et al. 1968). The Egalulik Group consists of two formations. The Nauyat Formation andesites and basalts with minor tuff and amygdaloidal flows (unit Hna, op. cit.) outcrop extensively south of Adams Sound in contact with the granitic gneiss units of the basement. Several small exposures of the volcanics are also present on the Magda Plateau in the south-central part of the graben.

The Adams Sound Formation (unit Has, op. cit.), an assemblage of relatively pure quartzite, quartz-pebble conglomerate and minor arkose, overlies the Nauyat Formation and outcrops on both shores and southeast of Adams Sound, within two large fault blocks in the Alfa and Adams River valleys south of Tay Sound and between the eastern and western arms of Paquet Bay. Though locally the contact between the two formations of the Egalulik Group appears conformable, the 1970 geological studies indicate that the quartzite overlies progressively older volcanic units to the east along the south shore of Adams Sound.

The Adams Sound Formation grades upward into the Arctic Bay Formation (unit Hab, op. cit.), the lower member of the Uluksan Group, through a sequence of interbedded quartzose sandstone and gypsiferous micaceous shales and siltstones. Above the transition zone the formation is characterized by a thick succession of black, fissile, gypsiferous fine-grained clastic rocks with occasional beds of dense calcareous dolomite and thin stromatolitic beds. To the east and south the upper part of the Arctic Bay Formation increases in dolomitic and clastic content. This is an abrupt facies change that begins with coarse-grained sandstones grading into algal, irregularly laminated dolomite or flat-pebble carbonaceous units. The Arctic Bay Formation units outcrop extensively in a south-southeast-trending zone from Adams Sound to the Magda Plateau, in the valley enclosing the Alfa and Adams River, in the Beta River valley and in the Fairweather Bay, Eskimo Inlet, Tay Sound and southern Paquet Bay area.

Detailed stratigraphic studies of the ore-bearing Society Cliffs Formation dolomite (unit Hsc, op. cit.) were undertaken in 1970. A bed of reworked Arctic Bay Formation

shale and very coarse-grained rounded conglomerate was taken as marker horizon for the base of the Society Cliff Formation in the western part of the graben but to the east of Milne Inlet the distinction between these formations is less pronounced. Four distinct varieties of the dolomite are present in the lower part of the formation, whereas the upper part is composed of laminated stromatolites. The base of the formation is a nodular dolomite marked by irregularly spaced algal laminae commonly associated with dolomites or bands of dolomite with regularly spaced laminae. A second type consists of medium-to-light grey laminated dolomite with coarsely crystalline laminae at intervals of .05 inch. Medium-to-grey dolomitic lutite is associated, in the third type, with nodular dolomite and with flat pebble units produced through the disruption of beds of various lithology. A clastic type consisting of siltstone, sandstone and arkose in thick beds thinning to the west was also recognized. Two belts of the Society Cliffs Formation trend southeast from Strathcona and Adams Sound on either side of the Alfa and Adams River valleys to Tremblay Sound. A single belt extends from the south shore of Tremblay Sound across Milne Inlet and along the north shore of the mouth of Eskimo Inlet to two miles east of Tay Sound. The Society Cliff Formation also outcrops west of the junction of the arms of Paquet Bay and forms two hills two to four miles west-southwest of Tremblay Sound.

A fourth member of the Uluksan Group, the Victor Bay Formation (unit Hvb, op. cit.) outcrops in an irregular belt from the head of Strathcona Sound to Mount Emma at the junction of the arms of White Bay. A smaller area between the head of the eastern branch of White Bay and Tay Sound is underlain by this formation. The Victor Bay Formation consists of a fine-grained clastic dolomite lower member thinning to the west, east and north from the head of Strathcona Sound and overlain by more resistant carbonate units. Flat-pebble conglomerate grading vertically into thin-bedded lutites and large algal bioherms are the principal units of the upper part of the formation.

Strathcona Sound Formation (unit Hss op. cit.) coarse-grained sandstone, mudstone, and shale, and Athole Point Formation (unit Hap, op. cit.) argillaceous limestones with minor beds of intraformational conglomerate and platy limestone overlie the Victor Bay Formation. Strathcona Sound Formation units outcrop along the north shore of Strathcona Sound and over a very broad belt extending from the head of Elwyn River to west of the main south-flowing tributary of the Alfa River. The Athole Point Formation outcrops on the

east side of the river valley and extends southeast to the north of White Bay west of Curry Island.

Two sets of gabbroic dykes intrude the volcano-sedimentary assemblage within the graben. One set trends southeast and predominates in the central region between the north shore of Adams Sound and the central part of Tremblay Sound and occurs sparsely northeast of Fabricius Fiord. A second less abundant set of dykes is present mainly in the northern half of the graben southeast of the head of Strathcona Sound and near the head of the Adams River.

Current Work and Results:

In 1969 Kenting Exploration Services Limited-Huntec Division conducted a two-week orientation survey on the Strathcona Sound lead-zinc deposit, a reconnaissance geochemical program, prospecting and limited geological mapping. Geophysical techniques used to test the response of the lead-zinc deposit include electromagnetic surveys using a McPhar Dual Frequency Vertical Loop electromagnetometer, a Ronka E.M. 16 and TURAM equipment, magnetic, self-potential, induced polarization and gravity surveys. The Ronka E.M. 16 survey gave good cross-overs where the ore body was covered by 200 feet of barren dolomite as did the vertical-loop electromagnetometer operating at 5,000 cycles per second. At 1,000 cycles per second the response was weak. The other geophysical techniques produced poor results. The geochemical orientation survey indicated that stream-silt and soil sampling surveys were effective methods of outlining sulphide occurrences. Anomalous zinc concentration detected by cold extraction analysis extends for up to two miles from the sulfide outcrops, while anomalous lead and silver concentrations are more restricted and can be used to pinpoint the occurrences.

In 1970 work comprised prospecting, reconnaissance and detailed geological mapping, extensive study of the stratigraphy of the rocks within the graben, airborne and ground geophysical surveys, reconnaissance and detailed geochemical surveys, diamond drilling and engineering studies.

The geological studies outlined an area of Karst features in Society Cliff Formation dolomite which extends east for 50 miles from Uluksan Peninsula to the head of the Strathcona and Mala Rivers and north for 15 miles from Adams Sound to Strathcona Sound. The lead-zinc deposit at Strathcona Sound is believed to have formed in solution channels during the dolomitization of the limestone.

Electromagnetic and kilocycle electromagnetic equipment mounted on a helicopter were used during the airborne geophysical survey. A 475 line-mile orientation survey over the Strathcona Sound deposit outlined 43 electromagnetic anomalies and 54 kilocycle electromagnetic anomalies. Equipment malfunctions and harmonic interference between the two systems resulted in the abandonment of the kilocycle electromagnetometer during the airborne survey. The electromagnetometer did not outline the lead-zinc deposit, but indicated the pyrite sand accumulations associated with it. A reconnaissance survey of 4,160 line-miles over the northeastern part of the graben outlined 396 anomalies, 62 of which were examined on the ground.

In 1970, 1588 silt samples and 74 soil samples were analyzed for zinc using colorimetric methods and those samples containing more than 150 parts per million zinc were then analyzed for copper and lead. Ground examination of geochemical anomalies generally located sufficient sulphide to explain the anomalous results.

Ground electromagnetic surveys with the McPhar's R.E.M. vertical loop unit, detailed prospecting, and reconnaissance geological mapping were done on geochemical and airborne geophysical anomalies. Seventy-six mineral occurrences were detected: 10 galena-sphalerite showings, 57 galena occurrences, four malachite-chalcopryrite-chalcocite occurrences, three pyrite sand concentrations and two hematite showings. The galena and sphalerite are commonly associated with secondary calcite and dolomite in fractures, vugs and breccia matrix in Society Cliffs Formation dolomite while copper minerals are associated with faults and gabbro dykes. Ground surveys of the airborne geophysical anomalies indicated that the conductive zones occur adjacent to dykes and are not associated with sulphide concentrations.

Detailed surveys were undertaken in six areas, five of which had first been outlined during the 1969 field program. Twelve miles north-northeast of the icefield east of Magda Plateau and within the DEE and M72 claim groups (72°31'28"N, 82°07'42"W) lead, zinc and copper concentrations were investigated by prospecting, geological mapping, airborne and ground electromagnetometer surveys, geochemical survey involving 333 soil and stream silt samples, trenching and the drilling of 15 holes totalling 6,588 feet. Galena, the predominant sulphide, occurs as isolated crystals and crystal-line masses in calcite- and dolomite-filled fractures and vugs in brecciated dolomite of the Society Cliffs Formation which has been faulted against granitic gneiss of the basement

complex along a major northeast-trending fault. Chalcopyrite, chalcocite, malachite and azurite occur along the fault and subsidiary faults in the dolomite. Minor quantities of sphalerite, pyrite and iron oxides were also detected. The highest metal concentrations encountered in four holes drilled within an area 1,200 feet by 200 feet consisted of intervals assaying up to 2.04 per cent combined lead-zinc over 45 feet and 0.39 per cent copper across 30 feet.

Reconnaissance geochemistry surveys in 1969 outlined a small anomalous area (72°52'43"N, 83°31'36"W) enclosing two northeast-flowing creeks 7.5 miles south-southeast of the head of Strathcona Sound. Airborne and ground electromagnetometer surveys, geochemical silt sampling and prospecting in 1970 confirmed the economic possibilities of the area. Several small galena and sphalerite occurrences were noted along the western stream and seven occurrences of pyrite sand, sphalerite and minor galena occur along the eastern stream in Society Cliffs Formation dolomite. Samples of frost boil material collected over the occurrences assayed up to .219 per cent zinc and .188 per cent lead.

During 1969 anomalous lead and zinc concentrations were found in silt in a five-mile stretch along the north shore of Adams River 19 miles east of the head of Adams Sound. In 1970 soil samples were collected from the anomalous area (72°45'52"N, 83°01'46"W) and detailed geological mapping, an electromagnetometer ground survey and four diamond drill holes totalling 1,653 feet were completed. The geochemical anomaly is underlain by the Society Cliffs Formation dolomite in which galena and minor sphalerite occur associated with calcite and dolomite fracture fillings. Geophysical and geochemical survey results do not relate directly to the outcropping sulphides. Only minor amounts of galena, sphalerite and pyrite were encountered in the diamond drill holes; the best assays ranging up to 0.93 per cent lead with 0.40 per cent zinc, and 0.32 per cent lead with 0.79 per cent zinc over 10-foot lengths.

A northwest-trending mesa (72°13'26"N, 81°33'17"W) approximately eight square miles in area and located between the head of Tremblay Sound and Robertson River was staked as the K claims in 1969 subsequent to the discovery of galena showings which were investigated in 1970 by geochemical silt surveys, geological mapping and prospecting. The mesa is a capping of Strathcona Sound Formation dolomite over Arctic Bay Formation fissile shale with intercalated stromatolitic dolomite and clastic units. Galena occurs within 200 feet of the top of the Arctic Bay Formation dolomite as veinlets

along fractures, with or without secondary dolomite, and as disseminated grains in dolomite interbedded with shales. The greatest concentration of galena amounting to one to twenty per cent of the rock, was noted over a 3000-foot by 500-foot area on the northeastern side of the mesa where the Arctic Bay Formation is in fault-contact with gneissic units of the basement complex.

Prospecting, geological mapping, detailed geochemical soil sampling and ground geophysical surveying were performed, in 1970, over an area of anomalous zinc and lead content silt outlined during 1969. The area (72°26'16"N, 82°45'54"W), staked as the M1 and M37 claim groups and north of the Magda Plateau, is underlain by banded, ferruginous and non-ferruginous dolomite of the Society Cliffs Formation. Disseminated galena in ferruginous dolomite talus covers an area 100 feet square and is present in many other locations. The geochemical survey outlined five areas of anomalous zinc and lead soil content, but the geophysical survey failed to outline the known showings.

In another area (72°26'36"N, 81°38'48"W), four miles northeast of Bellevue Mountain and south of the Alfa River, two occurrences of galena and minor sphalerite, fluorite and barite were noted in talus of brecciated laminated Society Cliffs Formation dolomite. No anomalies were detected during a ground electromagnetic survey, but a detailed geochemical soil survey outlined the mineralized areas. A trench was blasted on one of the showings but bedrock was not reached. The two zones of mineralized boulders, 300 by 500 feet and 200 by 400 feet are separated by 200 feet of soil and drift. The sulphides, barite and fluorite occur in vugs and calcite-breccia matrix and fracture filling.

Along with the reconnaissance and detailed geological, geochemical and geophysical studies conducted to the west of Milne Inlet, an engineering study to locate suitable areas for the construction of airfields and harbours was performed. Four of seventeen potential airfields are suitable for Hercules aircraft and one is suitable for Bristol aircraft. Seven harbour sites were investigated and four judged acceptable.

Concurrent with the exploration program conducted on the ground held by King Resources Company Limited, a similar program covered the area extending southeast from Tremblay Sound to the head of Paquet Bay. The program consisted of detailed geological mapping of nine stratigraphic sections, reconnaissance geological mapping, an airborne

electromagnetic survey, a reconnaissance geochemical silt survey, prospecting and follow-up traverses on geophysically and geochemically anomalous areas and ground geophysical surveys over airborne anomalies.

The airborne electromagnetic survey, using a helicopter-mounted Lockwood system, was flown along east-northeast-trending lines at one-half mile intervals and detected 198 anomalies, 181 of which were investigated on the ground by geological mapping, prospecting and, in 28 cases, ground electromagnetic surveys. A majority of the anomalies are thought to be caused by dykes, faults or strong joint sets, salt water in fractures or unconsolidated sediments. A number of anomalies detected in the basement gneisses north of the graben are associated with magnetite and ilmenite concentrations, which in some cases, represent up to 30 per cent of the rock.

The total zinc content of 820 silt samples was determined by the hot extraction method. Most anomalies are related to the major fault marking the northeastern edge of the graben and are distributed indiscriminately over the Victor Bay Formation, Society Cliffs Formation and Arctic Bay Formation units. Work in the anomalous areas did not outline any economic mineral concentrations.

One of the airborne anomalies consists of a well-defined 2,400-foot conductor under overburden. Geochemical surveys indicate a trend of relatively high zinc content in soils corresponding to the geophysical conductor.

STRATHCONA SOUND DEPOSIT	Zinc, Lead, Silver
Kuhulu Creek Mining Corporation Limited	48 c/l
a subsidiary of Texas Gulf Incorporated	(73°01'N, 84°20'W)
36th Floor,	
Toronto Dominion Centre,	
Toronto, Ontario.	

References:

Lemon and Blackadar (1963); Blackadar et al. (1968d);
Blackadar (1970)

Property:

9 ADMIRALTY, 15 ARCTIC, 18 BAY, 23 BEAR,
19 CAT, 12 DOG, 15 KUHULU, 10 LAKE,
10 LEMMING, 7 LION, 6 NANUK, 3 OWL,
7 RAVEN, 25 SEAL, 17 STRATHCONA,
35 WOLF claims 48 c/l

Location:

The claims cover the south shore of Strathcona Sound and extend west from Kuhulu Lake.

History:

Lead and zinc sulphides on the south shore of Strathcona Sound were first noted by A. English, a prospector who accompanied Captain J.E. Bernier on his expedition to northern Baffin Island in 1910-11. The showings were trenced by J.F. Tibbitt and J.W. McInnes in 1937 and two claims were staked, but lapsed in 1938. Texas Gulf Inc. became interested in the area after the publication of a preliminary Geological Survey of Canada report (Lemon and Blackadar, 1963) in which the massive pyrite showings were mentioned. Thirty-seven claims were staked by the company in 1957 to cover the showings. In 1958 detailed geological and geophysical surveys and trenching were performed and additional claims staked. Diamond drilling was undertaken in 1961 and by late 1968 some 90,000 feet had been drilled.

Description:

Grey dolomite of the Society Cliffs Formation (unit Hsc, Blackadar et al. 1968d) underlies most of the claim group. The overlying dolomite with minor limestone, mudstone and conglomerate of the Victor Bay Formation (unit Hvb, op. cit.) underlies a restricted area in the northwestern part

of the claim group while quartzose sandstone, and minor siltstone, conglomerate and shale of the Gallery Formation (unit 0ga op. cit.) underlie the southwestern corner of the group.

The flat-lying ore body is 300 feet wide, 30 to 50 feet thick and two miles long. The S-shaped body is nearly massive pyrite with varying amounts of sphalerite, galena and minor marcasite, and about five per cent disseminated calcite. Selenite and recrystallized dolomite occur in fractures and as breccia matrix in or near the ore body which occurs in Society Cliff dolomite. At least one mineralized vertical pipe extends down from the main mass of the ore body.

Current Work and Results:

In 1969 a 1000-foot adit was driven into the ore body and the deposit was bulk sampled. The material collected was sent to Timmins for metallurgical testing. Engineering studies were done on dock and airstrip location, water supply and possible sites for a concentration plant and auxiliary structures. The underground work indicated the presence of 6,000,000 tons of ore grading 16 per cent lead-zinc and less than two ounces of silver per ton.

ARCTIC ISLANDS

PROSPECTING PERMITS 214 to 219	Copper
Canadian Gridoil Limited (26 2/3%)	58 B/15; C/2,7,10; F/2
330 - 9th Avenue Southwest,	(73°30'N, 92°30'W)
Calgary, Alberta.	
Norpet Oil and Gas Limited (26 2/3%)	
Room 117, 1255 University Street,	
Montreal 2, Quebec.	
J.C. Sproule and Associates Limited (15%)	
1009 - 4th Avenue Southwest,	
Calgary, Alberta.	
Ponderay Exploration Company Limited (13 1/2%)	
Room 300, 10612 - 124th Street,	
Edmonton, Alberta.	
Conick Petroleum Limited (6 2/3%)	
330 - 9th Avenue Southwest,	
Calgary, Alberta.	
Global Marine Drilling Company (6 2/3%)	
2050 Elveden House,	
717 - 7th Avenue Southwest,	
Calgary, Alberta.	
Eric Connelly (5%)	
1135 Beverley Boulevard Southwest,	
Calgary, Alberta.	

Reference:

Blackadar (1967c); Christie (1967)

Property:

Prospecting permit 214	58 B/15
Prospecting permit 215	58 C/2
Prospecting permit 216	58 C/7
Prospecting permit 217	58 C/10
Prospecting permit 218	58 C/15
Prospecting permit 219	58 F/2

Location:

The permits cover a 20-mile wide area extending 100 miles from Creswell Bay to Cunningham Inlet and Cape Rennell on the north shore of Somerset Island.

History:

In early 1970 prospecting permits 214 to 219 were acquired for the consortium of companies by Canada Gridoil Limited to cover the mineral showings located during the 1969 reconnaissance survey.

Description:

The Prince of Wales and Somerset islands lie on the flanks of the Boothia Peninsula, a northerly-trending finger-like extension of the Precambrian crystalline complex outcropping in the westernmost 40 to 50 miles of Somerset Island. Numerous north-trending folds and faults are present in the flat-lying sedimentary rocks to the east and west of the uplift. The permit areas just east of the uplift are underlain by three main formations: an Ordovician or Silurian dolomite and dolomitic sandstone unit equivalent to the Allen Bay Formation of Cornwallis Island (Thorsteinsson and Kerr, 1968) the Silurian Read Bay Formation and the Silurian or Devonian Peel Sound Formation.

Dolomite and dolomitic sandstone (unit 9, Blackadar, 1967) underlie the western quarter of the southernmost four permit areas and are folded along north-trending axes. On Somerset Island the dolomite is conformably overlain by the limestone, limy dolomite, shaly dolomitic limestone and silty limestone of the Read Bay Formation. An argillaceous, thin-bedded limestone marks the transition between these two formations. The Read Bay Formation units, underlying the northern permit area and the eastern three-quarters of the central permit area, grade upward into conglomerate, sandstone and siltstone (unit 13, op. cit.) of Peel Sound Formation which outcrops in the eastern three-quarters of the southernmost permit areas.

Current Work and Results:

During 1969 a geological party examined parts of Victoria Island, Boothia Peninsula, Somerset Island, Prince of Wales Island, Devon Island and Ellesmere Island. Samples from a gossan zone near a fault on Somerset Island were found to contain anomalous metal values. Samples from a limestone bed along the same fault zone and 18 miles to the south and from a basic intrusion five miles west-northwest of the gossan were also anomalous.

In 1970 six permit areas were acquired and subjected to a geochemical and geological reconnaissance. The copper,

lead and zinc content of 3000 silt samples, collected from streams at intervals of .2 to .6 miles and of soil and stream sediment samples from areas of anomalous metal concentrations was determined by atomic absorption after digestion in hot nitric acid. Two anomalies correspond to occurrences of economic minerals.

A copper anomaly coincides with a transverse fault cutting through a narrow north-trending belt of steeply-dipping Read Bay Formation carbonates at 72°50'45"N and 93°42'45"W. Malachite and azurite were located in fissures and along bedding planes over an area ½-mile long by 300 feet along the fault. Rock samples chosen from the areas of high geochemical values assayed from .43 per cent copper, .08 per cent lead and .008 per cent zinc to 1.13 per cent copper, .008 per cent lead and .001 per cent zinc. A second copper anomaly corresponds to a slight trace of malachite found near a major tributary of the Aston River at the western border of prospecting permit 216.

A gossan found in 1969 in the lower dolomitic unit consists of pyrite and secondary iron oxides. Metal concentration in the gossan soils ranged up to 21 parts per million copper, higher than 1000 parts per million lead and 300 parts per million zinc.

Four small basic intrusions five miles west of the permit areas were found to be barren, as were gossan zones on the Grinnell Peninsula of Devon Island where veins of pyrite and calcite up to four feet thick occur in sheared limestone.

CORNWALLIS ISLAND PROJECT

Arvik Mines Limited

Trail, B.C.

owned by: Cominco Limited (75%)

Bankeno Mines Limited (25%)

Zinc, Lead

58 F/14; G/11

(75°15'N, 94°30'W)

References:

Thorpe (1966); Thorsteinsson and Kerr (1968)

Property:

18 MUSKOX claims

58 F/14

40 WALRUS claims

58 G/11

Location:

The MUSKOX claims extend south from the shore of a major west-flowing tributary of the Taylor River and are centred 19 miles north of Resolute. The WALRUS claims cover a north-trending area centred four miles south of Stuart Bay in the northern part of Cornwallis Island.

History:

Lead-zinc concentrations were first discovered on Little Cornwallis Island in 1960 by geologists mapping for Bankeno Mines Limited, owners of the petroleum rights in the area, who then undertook the detailed investigation of this showing and a reconnaissance program over the remainder of the island. In 1963 the company entered an exploration agreement with Cominco Limited. The next summer aerial prospecting on Cornwallis Island resulted in the discovery of a lead-zinc showing near the Taylor River and a zone of rusty soil containing anomalous concentrations of lead and zinc along Rookery Creek. In 1965 geological mapping, soil sampling and test pitting of the Taylor River showing and reconnaissance stream sediment sampling of a 400- to 500-square mile area were completed. An anomaly detected during the reconnaissance and the Rookery Creek area were soil-sampled and prospected. The WALRUS and MUSKOX claims were staked to cover the Taylor River showing and the new showing in the northern part of the island.

In early 1966 Cominco Limited acquired six prospecting permits, covering parts of Cornwallis Island. Stream sediment sampling, begun in 1965, was completed, as well as detailed exploration of the WALRUS claims and of a new geochemical anomaly detected in the area between the Bacon and Allen rivers west of the MUSKOX claims. Thirty-two line-miles of soil-sampling, 26 line-miles of induced polarization surveying, 20 line-miles of geological mapping and 376 feet of drilling were performed on the WALRUS claims. The geophysical survey outlined a 600- by 1,200-foot anomaly but the drilling was inconclusive. On the Allen River anomaly, 554 line-miles of geological mapping, 58.4 line-miles of geochemical soil-sampling, 16.7 line-miles of induced polarization, and 48 cubic yards of test pitting were performed. An anomaly 8,000 by 2,000 feet wide was outlined by the geochemical and induced polarization surveys. Sparsely mineralized bedrock was encountered in two of four pits blasted. All prospecting permits but the two covering the area about the WALRUS claims and the Allen River showing were relinquished subsequent to this work. The last two permits lapsed in

early 1969, but the WALRUS and MUSKOX claims are still in good standing.

Description:

Cornwallis and Little Cornwallis Islands are underlain by more than 22,000 feet of marine carbonates and clastics, evaporites, red-beds and non-marine clastics representing five concordant rock successions separated by regional unconformities. The oldest beds were deposited in the Franklinian miogeosyncline with subsequent units being deposited as thin, stable platform sediments now preserved in grabens, synclinal troughs and along the downfaulted sides of normal faults. The main tectonic feature within the area is the Cornwallis fold belt, a northwesterly-trending extension of the Boothia uplift.

The prime exploration target within the sequence of rocks outcropping on Cornwallis Island is the 1,700 feet of limestone and dolomite of the Thumb Mountain Formation (unit Oct, Thorsteinsson and Kerr, 1968). This unit is underlain by the Bay Fiord Formation (unit Ocb, op. cit.), 1,000 feet of gypsum, anhydrite, limestone and minor shale, and overlain by 30 to 150 feet of Irene Bay Formation (Oci, op. cit.) shale and limestone. All three formations are members of the Cornwallis Group which is underlain by limestone and minor dolomite of the Eleanor River Formation (unit Oe, op. cit.), and overlain by the Allen Bay Formation dolomite, minor limestone and shale (unit Osa, op. cit.). North of a facies change line trending northeasterly across the centre of the island, the chronological and stratigraphical equivalent of the Allen Bay Formation, the Cape Phillips Formation shale, limestone, cherty limestone, chert and dolomitic limestone (unit O-Dcp, op. cit.) overlies the Cornwallis Group.

Cornwallis Group units outcrop along two main arcuate belts on the eastern and western flanks of the Centre Anticline and the Lady Hamilton Syncline to the north. Outcrops within the southern part of the belt are bounded by a complex system of northeast- to northwest-trending faults which resulted in the formation of features such as the Sheringham and Taylor River grabens.

The WALRUS claims in the northern part of Cornwallis Island are underlain mainly by Thumb Mountain Formation limestone and dolomite. In the northern part of the group, these rocks are partly overlain by dolomite and minor conglomerate of the Middle Devonian Disappointment Bay Formation (unit Dd, op. cit.) and are in fault contact with the Cape

Phillips Formation. The southeast corner of the claims is underlain by Irene Bay Formation shale and limestone and units of the Cape Phillips Formation. The MUSKOX claims are also underlain by Thumb Mountain Formation units in fault-contact to the south with Allen Bay Formation dolomite, minor limestone and shale and overlain to the west by Irene Bay Formation and Allen Bay Formation units.

Zinc and lead sulphides occur within dolomite of the Thumb Mountain Formation as color-banded sphalerite aggregates in the interstices of breccia fragments and as fracture fillings and disseminations in a gangue of white calcite and dolomite. The MUSKOX and Allen River showings consist of fracture fillings and disseminations along the contact of a slightly brecciated dolomite with limestone.

Current Work and Results:

In 1970 detailed geological mapping and a gravity survey were performed over the WALRUS claims. Geological mapping outlined the extent of the Disappointment Bay Formation and of the surface showings. Sphalerite and minor associated galena occur as disseminations, colloform aggregates and veins in conglomeratic phases of the Disappointment Bay Formation. Sulphide concentrations of up to 5 per cent by volume were noted in rubble near the southern end of the Disappointment Bay Formation outcrops. Eight line-miles of gravity surveying performed gave no indication of economically interesting mineral concentrations.

PROSPECTING PERMIT 220
Bayou Petroleum Limited
a subsidiary of
Canada Northwest Land Limited
970 Three Calgary Place,
355 - 4th Avenue Southwest,
Calgary, Alberta.

Lead Zinc, Silver,
Copper
58 G/6
(75°22'N, 94°30'W)

Reference:

Thorsteinsson and Kerr (1968)

Property:

Prospecting permit 220

58 G/6

Location:

The prospecting permit area covers that part of northeastern Cornwallis Island extending west for 17.5 miles from the southern point of Eleanor Lake and south for 17 miles from Abandon Bay.

History:

Prospecting permit 220, acquired by Bayou Petroleum Limited in early 1970, covers ground previously held as prospecting permit 53 by Cominco Limited in 1966 and early 1967. Geological and geochemical reconnaissance of the area was performed by the latter company in conjunction with work on claims on Little Cornwallis Island and in the Taylor River and Stuart River areas of Cornwallis Island.

Description:

Lower and Middle Ordovician to Upper Devonian rocks outcrop within the permit area. Limestone and minor dolomite (unit Oe, Thorsteinsson and Kerr, 1968) of the Eleanor River Formation are exposed in the north-central part of the permit area in the core of the Caribou Anticline and at the southwestern border of the area in the Centre Anticline.

The Middle Ordovician Cornwallis Group, conformably overlying the Eleanor River Formation, consists of: gypsum, anhydrite and limestone with minor dolomite of the Bay Fiord Formation (unit Ocb, op. cit.), the limestone and dolomite of the Thumb Mountain Formation (unit Oct, op. cit.), and the shale and limestone of the Irene Bay Formation (unit Oci, op. cit.). These units outcrop in a four- to eight-mile wide arcuate belt, extending from the southwestern corner of the permit area to the north-central region, which includes the northern flanks of the Centre Anticline, the north-trending De Haven Anticline, the northwest-trending Caribou Anticline and less extensive unnamed anticlines to the east. These Middle Ordovician units are also exposed in the Musk Ox Anticline in the northwest corner of the permit area.

Shale, limestone, cherty limestone, chert and dolomitic limestone of the Late Ordovician to Early Devonian Cape Phillips Formation (unit O-Dcp, op. cit.) rest with sharp yet conformable contact on the Cornwallis Group units. The Cape Phillips Formation rocks outcrop extensively along the eastern and western borders of the permit area.

An equivalent of the Upper Cape Phillips Formation, The Read Bay Formation, is overlain by the Snowblind Bay

Formation limestone and dolomite conglomerate, dolomite, limestone, siltstone and sandstone (unit Dsn1, op. cit.) which outcrop in a restricted wedge-shaped fault-bounded area in the east-central part of the region. A lithologically similar limestone and dolomite conglomerate unit (unit Dsn2, op. cit.) underlies an area of similar extent to the south-southeast.

On most of the permit area, the Cape Phillips Formation is overlain unconformably by the Disappointment Bay Formation dolomite and minor conglomerate (unit Dd, op. cit.) which outcrop in the western part of the area along the flanks of the Lady Hamilton Syncline and along the northeastern flank of the Musk Ox Anticline to the north. Disappointment Bay Formation units also underlie an eight-mile by four-mile area west of Eleanor Lake and outcrop within the Eleanor Graben to the south.

The Blue Fiord Formation limestone (unit Dbl, op. cit.), of Middle Devonian age, was mapped along the west flank of the Lady Hamilton Syncline, within an unnamed syncline northeast of the Caribou Anticline and in the area of the Eleanor Graben. Limestone, sandstone and siltstone of the overlying Bird Fiord Formation (unit Dbi, op. cit.) outcrop locally along the axis of folds in the Blue Fiord Formation units.

The youngest formation in the permit area, sandstone with minor siltstone and shale of the Late Devonian Griper Bay Formation (unit Dmg, op. cit.), is exposed east and north of the Eleanor Graben and possibly within the Lady Hamilton Syncline.

Two main structural zones can be distinguished in the permit area. A western zone comprises a number of north-to northwest-trending folds, and a zone to the east and south consists of a four-mile wide arcuate belt of north to northeast-trending faults. The major structure in the western part of the permit area, the northwest-trending Lady Hamilton Syncline, is flanked to the north and northeast by the northwest-trending Musk Ox and Caribou Anticlines and to the east and southeast by the north-trending De Haven Anticline. South of the syncline, the Cornwallis Group units are disrupted by a series of north and east-northeast-trending normal faults. East of the De Haven Anticline, the Eleanor Graben was formed by north-trending faulting.

Current Work and Results:

A reconnaissance stream sediment geochemical sampling survey was performed over the permit area in 1970. A total of 378 samples were analyzed for copper, lead and zinc by atomic absorption after hot nitric acid extraction. Nineteen soil samples from iron-stained areas were also analyzed.

Relatively high lead and zinc concentrations were found in silt samples from the southwestern corner of the permit area where north-trending faults offset Cornwallis Group limestone and dolomite. Numerous iron-stains are associated with the faulting.

Except for pyrite and marcasite, sulphide minerals were only found 1.5 miles southeast of Eleanor Lake in an area (75°21'15"N, 94°09'W) where the Thumb Mountain Formation has been thrust over the Irene Bay and Cape Phillips Formations. Here, galena fills one- to two-inch wide fractures. Exposure on the scree-covered hill slope is poor. A grab sample of the rock assayed .14 per cent copper, 15.01 per cent lead, 4.04 per cent zinc, .26 per cent nickel and 2.07 ounces of silver per ton. An electromagnetic traverse run over the area did not outline any conductive body. A soil sample from an iron-stained fault zone 3/4 mile northwest of this showing contained .42 per cent zinc.

PROSPECTING PERMIT 221
Bayou Petroleums Limited
a subsidiary of
Canada Northwest Land Limited
970 Three Calgary Place,
355 - 4th Avenue Southwest,
Calgary, Alberta.

68 H/3
(75°15'N, 98°30'W)

References:

Kerr and Temple (1965); Temple (1965)

Property:

Prospecting permit 221

68 H/3

Location:

The prospecting permit area, at the southeastern corner of Bathurst Island, extends east from Dyke Ackland

Bay to Freemans Cove and north from Bedford Bay to the latitude of De La Breche Bay.

History:

Prospecting permit 221 was acquired in early 1970 following geological studies in the latter part of 1969.

Description:

Surface bedrock in the permit area consists of Middle and Lower Devonian carbonaceous and clastic rocks intruded by igneous rocks of Tertiary or Cretaceous age. The oldest rocks of the region, calcareous shale, siltstone and minor sandstone and limestone of the Lower Devonian Bathurst Island Formation, underlie the eastern edge and southeastern corners of the permit area, and are overlain, unconformably in places, by siltstone, sandstone, conglomerate, limestone and sandy dolomite of the Stuart Bay Formation which outcrop over most of the northern and central parts of the permit area. Disappointment Bay Formation dolomite underlies the southwestern quarter of the area and unconformably overlies the Stuart Bay Formation.

Fractures related to the Cornwallis Fold Belt, the western flank of which is covered by the permit area, served as passageways for the intrusion of basic-to-felsic igneous masses which now outcrop in the east-central region of the area west of Freemans Cove. From this centre of igneous activity, anticlinal and synclinal folds can be seen plunging northwesterly and southwesterly. Steeper folds occur to the east in association with numerous north-trending faults. Faulting has preserved 100 feet of sand and shale with an interbedded basalt flow of the Tertiary or Cretaceous Eureka Sound Formation in the area south of Freemans Cove.

Current Work and Results:

A total of 293 stream silt samples collected at intervals of one-half to one mile were analyzed for copper, lead, zinc and nickel by atomic absorption after hot nitric acid digestion. The geochemical reconnaissance did not outline any anomalies.

Thirty-two sample soil geochemical survey and electromagnetic and magnetic surveys were performed over pronounced iron stains (75°08'30"N, 98°21'30"W) associated with numerous basalt dykes intruded into dolomite. Only pyrite and marcasite nodules were noted although at least two soil samples contained

anomalous quantities of lead and zinc. The geophysical surveys did not outline any conductive bodies.

LITTLE CORNWALLIS ISLAND PROJECT	Zinc, Lead
Arvik Mines Limited,	68 H/8,9
Trail, B.C.	(75°30'N, 96°30'W)
owned by: Cominco Limited (75%)	
Bankeno Mines Limited (25%)	

References:

Schiller (1965); Thorpe (1966); Thorsteinsson and Kerr (1968)

Property:

21 POLARIS claims	68 H/8
22 ECLIPSE, 19 TUNDRA and 49 unnamed claims	68 H/9

Location:

Two groups of claims were staked on Little Cornwallis Island, the POLARIS group to cover a southwest-trending peninsula on the west shore north of Riddle Point and the other to cover an area bounded to the north, south and west by the major lakes in the northeastern half of the island.

History:

Two lead-zinc showings were discovered on Little Cornwallis Island in 1960 by geologists of Bankeno Mines Limited during an oil exploration program. The western showing was staked as the POLARIS group and that same year subjected to a diamond drilling program, involving nine holes totalling 632 feet. Results of the drilling (Schiller, 1965) were discouraging.

Bankeno Mines Limited acquired prospecting permits 19 and 20 in 1961 and undertook preliminary geological mapping and soil sampling programs on the eastern showing. During 1963 the 22 ECLIPSE claims were staked and the showings were channel-sampled. The results of this work were then presented to Cominco Limited and an exploration agreement was arranged.

The 1964 exploration program involving geological mapping, statistical counts of mineralized rubble, and geo-chemical soil-sampling of the ECLIPSE claims, delimited the areas of mineralized surface material. Pitting within these

areas exposed oxidized galena-sphalerite-marcasite concentrations. Nineteen TUNDRA claims were added to the property at this time.

In 1965, 37 vertical holes totalling 2,311 feet were drilled and 15.5 line-miles of induced polarization surveys performed within the ECLIPSE claims (Thorpe, 1966). The drilling partially outlined three separate zones of lead-zinc concentration. Forty-nine unnamed claims were added to the property. In 1966, 1,522 feet of diamond drilling were completed on the ECLIPSE claims while 11 line-miles each of induced polarization and soil geochemical surveys, as well as 200 cubic yards of trenching, were performed on the POLARIS claims. Geochemical reconnaissance stream sediment surveys were done on the two properties. Part of the diamond drilling on the ECLIPSE claims tested induced polarization anomalies tributary to the main zone and intersected barren, slightly-graphitic carbonaceous limestone.

Description:

The two claim groups are underlain by limestone and dolomite of the Middle Ordovician Thumb Mountain Formation (unit Oct, Thorsteinsson and Kerr, 1968) of the Cornwallis Group. The POLARIS group cover part of the western flank of a northeast-trending sinuous syncline forming the western half of Little Cornwallis Island. Thumb Mountain Formation units are the oldest rocks outcropping within the structure and are overlain by shale and limestone of the Irene Bay Formation (unit Oci, op. cit.), the upper member of the Cornwallis Group. Shale, limestone, cherty limestone, chert and dolomitic limestone of the Cape Phillip Formation (unit O-Dep, op. cit.) overlie the Cornwallis Group. Middle Devonian units occupy the axial zone of the syncline to the northeast.

The area of the western claim group is structurally more complex. Thumb Mountain Formation units, deformed into a number of north-northwest trending anticlines, underlie most of the eastern half of the island and the claim group. A sequence of dolomite boulder conglomerate that grades stratigraphically upwards into dolomite interbedded with red quartzose dolomite caps an upland surface in the western part of the claims and has been mapped as the Early Devonian Stuart Bay Formation (unit Dst, op. cit.). These rocks rest with angular unconformity on Cape Phillips Formation and Irene Bay Formation units which outcrop in narrow arcuate bands in the southwestern part of the claims.

Three showings were outlined within the POLARIS claims (75°23'15"N, 96°55'30"W) in 1960. The areas of mineralized rubble are about equally spaced along strike over a distance of one mile on the eastern flank of a gentle anticline trending northwest. The 1960 diamond drilling investigated only the northernmost and longest, 600 by 100 feet, area of rubble. All three areas were pitted in 1966 and assays of up to 36 per cent combined zinc-lead were obtained from samples from the central showing. Sphalerite, marcasite and minor galena occur as massive open-space filling between breccia fragments in a gangue of calcite and dolomite. The 1966 work indicates that the breccia occupies a fault transcurrent to the dip of the various rock units.

The ECLIPSE claims cover three showings distributed at intervals over a north-northwest strike length of 1½ miles along the southwest flank of an open anticline. The southernmost and central showings occur in narrow breccia zones, while the main showing consists of two major zones of brecciated dolomite and limestone in a tear fault. Sphalerite, galena and pyrite with smithsonite and iron oxide occur as open-space filling in a calcite gangue between the breccia fragments. Drilling of the northern showing in 1965 and 1966 has indicated the following ore reserves:

<u>Area</u>	<u>Tons</u>	<u>Zinc</u>	<u>Lead</u>
West breccia	1,000,000	12.43%	2.18%
East breccia			
zinc zone	271,000	3.60%	0.05%
Lead-zinc zone	265,000	3.45%	2.19%

Current Work and Results:

Exploration of the ECLIPSE and POLARIS showings resumed in 1970 with geological mapping and a soil geochemical survey on the ECLIPSE claims. On the POLARIS group geological and gravity surveys were undertaken as a prelude to the 1971 diamond drilling program. The induced polarization data are believed to represent the distribution of shales of the Irene Bay Formation.

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INTRODUCTION

This review of mineral exploration in the eastern Northwest Territories during 1971 and 1972 is based on information obtained during visits to the properties and from a study of the technical reports submitted as representation work, Geological Survey of Canada publications and the monthly reports of the Mining Recorder in Ottawa. The author acknowledges, with thanks, the co-operation of companies and individuals in the mineral industry and members of government agencies.

EXPLORATION IN 1971 - 1972

Only 48 prospecting permits were acquired in the eastern Northwest Territories in 1971 and 1972: a marked decrease from the two previous years. The emphasis changed from a search for uranium deposits to a study of the base-metal potential of the area. Most of the new permits were covered by airborne electromagnetic and magnetic surveys and by reconnaissance geological mapping. Numerous follow-up studies included diamond drilling and geological mapping and geochemical and geophysical surveys performed on anomalies detected during reconnaissance and airborne surveys performed in 1970 and 1971.

In the southern part of the eastern Northwest Territories, most of the work consisted of ground follow-up programs; Canadian Homestead Oils Limited, Canadian Reserve Oil and Gas Limited, Penarroya Canada Limitée, Rankin Nickel Syndicate, Husky Oils Limited, Republic Resources Limited and Prudhoe Bay Oils Limited investigated anomalies detected by airborne surveys in 1970. Five Star Petroleums and Mines Limited trenched and drilled a number of showings and gossan zones on the west shore of Hudson Bay. Canadian Superior Exploration Limited explored two prospecting permits in the Carr Lake region, using airborne electromagnetic and magnetic surveys, ground geophysical surveys and geological mapping. In 1971 and 1972, a number of prospectors were also involved in exploring the area east and north of Kaminak Lake.

Work in the central part of the area was performed mainly by Pan Ocean Oil Limited and Aquitaine Company of Canada Limited. Pan Ocean Oil Limited performed geophysical, geological and geochemical surveys on permits and claim groups covering uranium showings detected in 1968 and 1969. Aquitaine Company of Canada Limited explored claims and a prospecting permit covering base-metal showings discovered during their 1969-1970 uranium exploration program.

Seven prospecting permits and a large number of claims were acquired in early 1971 in the Perry River area, where norite boulders bearing nickel and copper had been discovered in 1970. Giant Yellowknife Mines Limited explored their permit areas by means of airborne electromagnetic and magnetic surveys, ground geological and geophysical surveys and diamond drilling. Savanna Creek Gas and Oil Limited, Rio Alto Explorations Limited and Adera Mining Limited staked and prospected a number of claims to the east of these permits. The only other exploration in the northern District of Keewatin was by Aquitaine Company of Canada Limited on their claim groups and prospecting permits in the Wager Bay area.

Aquitaine Company of Canada Limited also conducted extensive airborne surveys on 18 prospecting permits, covering the Cumberland Peninsula on southern Baffin Island. Other work on Baffin Island included prospecting by Aquitaine Company of Canada Limited and Canadian Nickel Company Limited and a feasibility study by Watts, Griffith and McOuat Limited of the Strathcona Sound deposit for Mineral Resources International Limited.

In the Arctic Islands, exploration was restricted to the area around Little Cornwallis Island, where extensive development work was performed on the Arvik Mines Limited lead-zinc deposit. Cominco Limited explored 12 prospecting permits and numerous claim groups on Cornwallis, Little Cornwallis, Devon and Bathurst Islands. Bow Valley Industries Limited investigated two smaller islands north of Cornwallis Island.

EASTERN DISTRICT OF MACKENZIE

PROSPECTING PERMITS 138, 139 & 140	Copper, Silver, Lead, Zinc
Canadian Homestead Oils Limited,	65 D/3,4,7
630 - 6th Avenue Southwest,	(60°15'N, 103°15'W)
Calgary, Alberta.	

References:

Laporte (1974); Taylor (1963)

Property:

Prospecting permit 138	65 D/3
Prospecting permit 139	65 D/4
Prospecting permit 140	65 D/7

Location:

Prospecting permits 138 and 139 cover an area north of the Northwest Territories - Saskatchewan border, which extends from Striding Lake in the southwest to the northeastern part of Atzinging Lake. Prospecting permit 140, to the northeast, extends east from Obre Lake to Kasba Lake; between Barr Lake, to the north, and Bourassa Lake, to the south.

History:

The three permits were acquired by Canadian Homestead Oils Limited in early 1969 and lapsed in 1972.

Description:

Parts of two, slightly arcuate, northeast- to north-trending belts of sedimentary and volcanic rocks within granitic and metamorphic units are included in the permit areas. The major belt, located south and east of Atzinging Lake, consists chiefly of greywacke with some quartzite and minor iron-formation (unit 1, Taylor, 1963) to the west, basalt and tuff (unit 2, op. cit.) to the east, and intercalated sedimentary and volcanic rocks (unit 3, op. cit.) to the north. A second belt of sedimentary rocks outcrops in the north-central part of the western permit.

The northwestern three quarters of prospecting permit 139 and the northwestern corner of prospecting permit 138 are underlain by a four- to six-mile wide zone of gneissic granite and granodiorite, partly granitized sedimentary rocks and minor

pegmatite (unit 5, op. cit.) to the east and paragneiss, chiefly quartz-rich gneiss with various amounts of biotite, hornblende, feldspar, garnet and pyroxene (unit 4, op. cit.) to the north and west. The paragneiss, derived mainly from the sedimentary unit, encloses narrow elongate bodies of amphibolite hornblendite (unit A, op. cit.) gabbro, quartz gabbro, pyroxenite and anorthosite (unit B, op. cit.).

The eastern border of prospecting permit 140 and the area east of the main volcanic-sedimentary belt are underlain by granite, granodiorite and gneissic rocks (unit 6, op. cit.). A body of similar composition, 20 square miles in area, intrudes the sediments south of Atzinging Lake.

The southwestern permit areas are cut by two major northeast-trending faults which mark the contact between the sedimentary rocks and interlayered sedimentary and volcanic rocks, and the gneissic granite, granodiorite and paragneiss. A third fault trends northwest and marks the southern contact of the main belt volcanic member with the sedimentary rock units.

Current Work and Results:

Twenty-seven anomalous areas outlined during the airborne surveys flown in 1969 were examined in 1972 by Trigg, Woollett and Associates Limited for Imperial Oil Enterprises Limited. Work done consisted of ground geophysical location surveys, line cutting, geochemical soil sampling, prospecting and geological examinations.

The only showing (60°04'45"N, 103°18'40"W) discovered during the surveys is on a 14,525-foot long, northeast-trending conductor with fair to good response. Trenching exposed intensely brecciated, metamorphosed, interbedded quartzite and greywacke enclosing a three-inch seam of massive pyrrhotite containing quartz-breccia fragments. Chalcopyrite, sphalerite and galena occur as small masses and disseminations along cleavage or shear planes in a 0.7 foot wide quartz vein and in a quartz breccia zone between two minor faults. A channel sample from the trench assayed 6.9 ounces per ton silver, 0.03 per cent copper, 2.48 per cent lead and 3.02 per cent zinc over one foot but other samples assayed much less. Rusty boulders, containing mainly pyrrhotite and some pyrite, occur along the baseline, and outcrops of graphitic metasediments are present.

Pyrrhotite and graphite concentrations were discovered on a number of other anomalies but no sulfide deposits of economic value were found.

PROSPECTING PERMIT 141

Canadian Reserve Oil and Gas Limited, 65 D/6
1600 - 639 Fifth Avenue Southwest, (60°22'N, 103°20'W)
Calgary, Alberta.

References:

Laporte (1974); Taylor (1963)

Property:

Prospecting permit 141 65 D/6

Location:

Prospecting permit 141 covers the area extending west of Obre Lake, northwest of Atzinging Lake and southwest of Snowbird Lake.

History:

Fargo Oils Limited, now Canadian Reserve Oil and Gas Limited, acquired the three permits in early 1969 and relinquished prospecting permits 142 and 143 in 1970. Prospecting permit 141 lapsed in 1972.

Description:

Within the permit area, gneissic granite and granodiorite (unit 5, Taylor, 1963) enclose a number of northeast-trending volcanic-sedimentary belts. The main belt extends along the west shore of Latimer Lake, from south and west of Obre Lake to northeast of Snowbird Lake. To the southeast and in its north-central part, the belt consists of sedimentary rocks: chiefly greywacke with some quartzite and minor iron-formation (unit 1, op. cit.). From west of Obre Lake to west of Latimer Lake, the belt consists of intercalated volcanic and sedimentary rocks (unit 3, op. cit.). To the southwest, these rocks have been metamorphosed into paragneiss: chiefly quartz-rich gneisses with various amounts of biotite, hornblende, feldspar, garnet and pyroxene (unit 4, op. cit.). Sedimentary rocks also outcrop in two narrow arcuate belts in the southwest corner of prospecting permit 141 and in a narrow northeast-trending belt northwest of Snowbird Lake.

Elongate bodies of gabbro, quartz gabbro, pyroxenite and anorthosite (unit B, op. cit.) intrude the volcanic-sedimentary belt south and east of Snowbird Lake.

An arcuate fault trends northeast, then north along the western edge of the main volcanic-sedimentary belt west of Obre Lake, along the east shore of Snowbird Lake and further north into the gneissic granite and granodiorite. Shorter faults and shear zones disrupt the main volcanic-sedimentary belt north of Latimer Lake and east of Snowbird Lake.

Current Work and Results:

In 1971, seven of the eleven anomalies surveyed by Geoterrex Limited in 1970 (Laporte, 1974) were diamond drilled. The anomaly on the peninsula west of the mouth of Dehoux Bay is caused by disseminated non-nickeliferous pyrrhotite in gabbro, which is in contact with granite. Two conductors west of Dehoux Bay and four of the conductors on the west edge of the permit area correspond to graphitic and pyritic granitic gneiss. The fifth and southernmost conductor, near the west edge of the permit area, corresponds to garnet gneiss and gneissic gabbro sparsely to well-mineralized with graphite, pyrrhotite, pyrite and magnetite. Samples of the sulphide-rich intersections that were assayed contained no economic concentration of metals.

PERRY RIVER PROJECT
Giant Yellowknife Mines Limited,
P.O. Box 40,
Commerce Court West,
Toronto, Ontario.

Nickel, Copper
66 L/9,10,16; M/1,8,9; N/12
(67°07'N, 102°15'W)

References:

Fraser (1964); Heywood (1961)

Property:

Prospecting permit 259	66 L/9
Prospecting permit 260	66 L/10
Prospecting permit 261	66 L/16
Prospecting permit 262	66 M/1
Prospecting permit 263	66 M/8
Prospecting permit 264	66 M/9
Prospecting permit 265	66 N/12

Location:

The prospecting permits cover an area extending east from MacAlpine Lake across the Perry River, north to Chester

Bay and east along the shore of Queen Maud Gulf to seven miles west of the Pitok River.

History:

During the summer of 1970, a joint exploration program involving Giant Yellowknife Mines Limited and the Dragon Syndicate led to the discovery of a number of well-defined trains of norite boulders and small showings containing 0.12 to 1.93 per cent copper and 0.73 to 2.47 per cent nickel. The seven prospecting permits were acquired in April 1971 to cover a series of gabbroic intrusives, believed to be genetically related to the norite.

Description:

The Perry River area is underlain by mixed schists and gneisses (unit 4, Fraser, 1964; units 2 and 5, Heywood, 1961) intruded by granitic (unit 5, Fraser, 1964; unit 6, Heywood, 1961) and dioritic rocks (unit 6a, Fraser 1964), and younger diabase dykes (unit 20, Fraser, 1964). The schist and gneiss mixtures include granitic gneiss, mafic gneiss, mylonite, biotite gneiss and migmatite, hornblende gneiss, amphibolite gneiss, calc-silicate gneiss and granulite, garnet- and pyroxene-bearing gneiss, and granulite and augen gneiss. Three main intrusions of pyroxene-bearing granite and granodiorite outcrop west of the lower reaches of Perry River, near Highland Lake and east of MacAlpine Lake.

Plugs of diorite and gabbro, one to two miles in diameter, intrude the gneisses along an axis trending north from the east shore of MacAlpine Lake to Chester Bay. The gabbros are unshered and cut by north-trending diabase dykes.

A two-mile long north-trending boulder train on Winter Island, at the mouth of the Perry River, consists mainly of rusty norite boulders mineralized with chalcopyrite, pyrrhotite, pentlandite and pyrite. One boulder consists of amphibole schist with chalcopyrite and pyrrhotite concentrated in bands parallel to the schistosity. The chalcopyrite occurs throughout the norite as fine stringers, fracture fillings and small patches. The pyrrhotite occurs in massive isolated blebs.

Some outcrops of gneiss enclose amphibole-biotite-quartz bands containing minor amounts of pyrite, pyrrhotite, chalcopyrite and magnetite. These outcrops form conspicuous gossan zones up to 20 feet wide and 200 to 300 feet long. Five showings of this type were discovered:

Showing	Location	Width (feet)	Length (feet)	Content of grab samples Copper (%) Nickel (%)	
L	67°28'30"N, 102°11'30"W	2 to 3	150	0.19	0.36
M	67°33'25"N, 102°11'W	1	15	0.25	0.56
N	67°31'20"N, 102°12'W	1	50	0.31	0.56
Swan	67°38'45"N, 101°54'W	5	250	0.19	0.07
Jaeger		10	400	0.23	0.03

The most significant showing discovered (67°33'45"N, 101°57'45"W) consists of a 10-foot long outcrop of diabase with disseminated pyrite, pyrrhotite and chalcopyrite. A sample of the rock assayed 1.75 per cent copper and 0.50 per cent nickel.

A coarse-grained, 3-foot wide pyroxenite sill (67°39'N, 102°11'30"W), associated with iron-formation and magnetite-rich garnetiferous gneiss and granulite, contains evenly disseminated non-nickeliferous pyrrhotite and pyrite.

Current Work and Results:

In 1971 an airborne geophysical survey flown using magnetic in-phase/out-of-phase electromagnetic and kilocycle electromagnetic systems covered 6,272 line-miles along east-trending lines and 4,265 line-miles along north-trending lines, at ¼-mile intervals. Seventy in-phase/out-of-phase electromagnetic anomalies were outlined and of these, twenty zones and seven single-line responses are considered to warrant follow-up. A photogeological evaluation of the permit areas was also undertaken during the summer.

The 1972 program involved ground geophysical surveys over 36 airborne anomalies detected in 1971, geological studies of 33 airborne anomalies and 14 other areas of interest and 8,587 feet of diamond drilling on 18 anomalies. None of the holes intersected norite. All the conductors probed are graphite-, pyrrhotite- and pyrite-bearing metasediments that apparently lack economic concentrations of metals. The geological studies outlined numerous mafic sills throughout the area.

Although these areas contain up to 10 per cent disseminated pyrrhotite, the samples collected assayed less than 0.1 per cent nickel.

SOUTHERN DISTRICT OF KEEWATIN

MISSION KEEWATIN	Copper, Zinc, Silver, Nickel, Gold
Penarroya Canada Limitée,	55 E/9, 10, 13, K/3, L/3, 7; 65 H/16
10 King Street East,	(62°N, 74°W)
Toronto, Ontario.	

References:

Davidson (1970b); Laporte (1974)

Property:

Prospecting permit 257	55 E/9
Prospecting permit 258	55 E/10
233 BEL claims	55 E/13; 65 H/16
67 BETA, 123 CRI, 21 DELTA,	
7 EPSILON, 3 ETA, 15 GAMMA,	
28 LAMBDA, 3 MU, 24 POL,	
27 T and 8 THETA claims	55 K/3
Prospecting permit 205	55 L/3
5 KL and 160 LAD claims and	
prospecting permit 206	55 L/7
Prospecting permit 207	65 H/16

Location:

The main group of 326 claims was staked within an area (62°10'N, 93°15'W) centered ten miles northwest of the abandoned settlement of Tavani and bounded to the south by Fishery Lake, to the east by Mistake Bay and to the west by the Ferguson River. Prospecting permits 205 and 206 (62°15'N, 95°00'W) cover the western, southern and northeastern shores of Kaminak Lake and enclose the KL and LAD claims. Prospecting permit 207 (61°52'N, 96°15'W) and the BEL claims cover the area between the Turquetil and Yandle lakes. Prospecting permits 257 and 258 (61°37'N, 94°30'W) extend east from 4 miles east of Maguse Lake for 33 miles and north, from 7 miles north of the mouth of the Maguse River, to the mouth of the Wallace River.

History:

The BEL, CRI, T, KL and LAD claims were staked for Penarroya Canada Limitée in August and September 1969 to cover outcrops of felsic volcanics outlined during a geological survey in 1969. Prospecting permits 205 and 207 were acquired in April 1970 and the remaining claim groups staked later that summer to cover interesting anomalies detected during the exploration program. Prospecting permits 257 and 258 were

acquired in April 1971. Ten CRI, 27 T, 68 IAD, 148 BEL claims were allowed to lapse in September 1971. The five prospecting permits lapsed or were relinquished in early 1973.

Description:

Prospecting permits 257 and 258 cover an east-trending metasedimentary-metavolcanic belt which is intruded to the north-west and northeast by biotite adamellite (unit 3, Davidson, 1970b) and hornblende tonalite with minor hornblende-biotite granodiorite (unit 2, op. cit.), and is in contact to the south-east with quartz-feldspar gneiss and hornblende-plagioclase gneiss (unit 7, op. cit.). Outcropping within the belt are amphibolitic greenstones, amphibolite and amphibole schist (unit Am', op. cit.), quartzofeldspathic schist and gneiss (unit Av' and Avn, op. cit.), phyllite, schist and dense quartzofeldspathic gneiss, derived from tuff and agglomerate of intermediate composition, with intercalated sedimentary rocks (unit At' and Ats', op. cit.), and phyllite, schist and gneiss derived from slate, greywacke, siltstone, tuffaceous greywacke and subgreywacke (unit As' and Asn, op. cit.). Numerous bands of magnetite iron-formation trend east across the permit areas, within the sediments. The remaining permits and claim groups are described by Laporte (1974).

Current Work and Results:

In 1971, exploration involved reconnaissance geological mapping of prospecting permits 257 and 258, detailed geological mapping of the eastern BEL claims and the central part of prospecting permit 206, 101 line-miles of TURAM electromagnetic, 21 line-miles of S.E. 300 electromagnetic, and 30 line-miles of magnetic surveys in the Tavani and Turquetil Lake areas, and 4,579 feet of diamond drilling in 11 holes. In the Tavani area, 10 airborne anomalies detected in 1970 (Laporte, 1974) were investigated using the TURAM system and 10 using the S.E. 300 system. In the Turquetil Lake area, the TURAM system was used to investigate four anomalies and the S.E. 300 system for one anomaly. Only three airborne anomalies in the Tavani area and three in the Turquetil Lake area have not been subjected to ground geophysical surveys.

Eight anomalies were drilled in the Tavani area, in 1971: four correspond to graphitic acid tuff beds, one remains unexplained and three had already been probed in 1970 (Laporte, 1974). A 256-foot hole, drilled on the GAMMA claims, 250 feet southwest of the 1970 hole probing the T anomaly (62°10'N, 93°10'W), intersected only barren rhyolite enclosing andesite and acid tuff bands. A 345-foot hole was drilled 175 feet

west-southwest of a hole put down in 1970 on anomaly S (62°07' 45"N, 93°11'30"W), on the CRI claims. This hole intersected alternating andesite and rhyolite bands with a few breccia zones enclosing lenses of pyrrhotite, pyrite, chalcopyrite and sphalerite.

The most interesting sulphide showing discovered is anomaly A (62°08'45"N, 93°19'W) on the POL claims. Four holes were drilled on this anomaly in 1971, bringing the total footage drilled to 2,734 feet in six holes. All holes have encountered disseminated pyrite, pyrrhotite and chalcopyrite, with silver and gold concentrations, in a homogeneous fine-grained meta-dacite with numerous quartz, chlorite, calcite and sulphide amygdules. The east-trending sulphide zone, 390 feet wide and 1,300 feet long, was probed to a depth of 325 feet.

CARR LAKE PROJECT	Copper, Molybdenum, Gold
Canadian Superior Exploration Limited,	55 E/13,14, L/4; 65 I/1
2201, 1177 West Hastings Street,	(62°N, 74°W)
Vancouver, B.C.	

References:

Bell (1971); Davidson (1970a,b); Wright (1967)

Property:

12 KAILA, 16 SIKSIK, 12 TUKTU claims	55 E/13
3 C and 6 P claims	55 E/14
14 AMOW, 238 C, 12 CL claims and prospecting permit 268	55 L/4
Prospecting permit 269	65 I/1

Location:

The prospecting permits extend west, from five miles east of Carr Lake to the east shore of a major widening of the Kogtok River. Most of the claims are in a northwest trending zone, two miles west of Carr Lake. Four CL claims were staked 10 miles north of Carr Lake. The P claims and three C claims are on the north shore of Maguse Lake, southeast of Turquetil Lake.

History:

In September 1970, M.A. Kaufman acquired 290 C claims, to the west and south of the DEE claims and 10 P claims from

the stakers. Canadian Superior Exploration Limited acquired 221 of the C claims and 6 of the P claims in February 1971 and the two prospecting permits in April 1971. Twenty C and 12 CL claims were added to the company's holdings in September of that year.

Sixty-eight of the Canadian Superior Exploration Limited C claims were allowed to lapse in June 1972. The AMOW, KAILA, SIKSIK and TUKTU claims were staked in September.

The P claims were staked to cover a copper-molybdenum showing examined by Giant Yellowknife Mines Limited in 1961. Chalcopyrite, molybdenite and pyrite occur in aplite and quartz veins trending east in gabbro intruding dacites. Samples from trenches blasted across the veins assayed up to 0.4 per cent copper, 0.09 per cent molybdenum and 0.04 ounces per ton gold. A northwest-trending conductor was outlined during a reconnaissance electromagnetic survey of the showing.

Description:

The area west of Carr Lake is underlain by the Kaminak Group, comprising massive or pillowed basaltic and andesitic greenstones with some intercalated mafic pyroclastic rocks and mafic intrusions (unit Am, Davidson, 1970a,b and Bell, 1971), mafic flows with intercalated felsic flows and tuffs (unit Av, op. cit.), felsic tuff, agglomerate, flow breccia and associated quartz-feldspar porphyry intrusions (unit Af, op. cit.) and greywacke, slate and minor tuff, volcanic pebble conglomerate and iron-formation (unit As, op. cit.). Felsic volcanics outcrop along a north-northwest-trending, one- to two-mile band, two miles west of Carr Lake and enclose the copper-zinc showing on the DEE claims. The proportion of sedimentary to volcanic rocks increases towards the northwest, southwest and southeast.

Hornblende gabbro or diorite (unit 1, op. cit.) and hornblende tonalite (unit 2, op. cit.) intrude the Kaminak Group rocks to the east, north and south of Carr Lake, along a line trending south three miles west of the lake and in the west-central part of prospecting permit 269. Porphyritic biotite adamellite (unit 3, Davidson, 1970a) outcrops east of Carr Lake and equigranular granite (unit 5, Bell, 1971) intrudes the metasediments in the northwestern part of prospecting permit 269.

During the 1972 geological mapping of the area west of Carr Lake the Kaminak Group was subdivided into four units. The oldest unit is a 1,000- to 3,000-foot thick assemblage of

undifferentiated acid flows and hypabyssal intrusions outcropping in a one- to five-mile wide band trending west then north-northwest from Carr Lake to the northwestern corner of prospecting permit 268. A 9,000-foot thick sequence of interbedded intermediate to acid flows and pyroclastic rocks outcrops west and south of the felsic formation. To the south, the dacitic formation is overlain by massive andesitic pillow lavas and flow breccias with thin interflow cherts, rusty slates and argillites containing pyrrhotite and pyrite. Slightly metamorphosed tuffaceous greywacke, thinly banded chert and iron-formation form the youngest member of the Kaminak Group in the area and outcrop south of Carr Lake.

A syncline of Hurwitz Group rocks overlies the Kaminak Group north of Carr Lake. These younger rocks were divided into a basal basaltic sequence consisting of 250 feet of massive fine-grained basalt flows enclosing thin grit or arkose lenses and overlain by a poorly-sorted and poorly-stratified conglomerate which occupies the core of the syncline.

Current Work and Results:

An electromagnetic and magnetic survey totalling 2,524 line-miles was flown in 1971 over the area south, west and north of Carr Lake. Forty-five anomalous zones were detected during the airborne survey; 39 of these were subjected to ground examination in 1971 and 1972. The P claims showing was also examined. The ground surveys involved electromagnetic, magnetic and, in some cases, gravity surveys and geological mapping.

Twenty-seven conductive systems were outlined during the ground surveys and 22 of these are attributed to weakly conductive argillite bands, shear zones and faults in the Kaminak Group volcanics. The other five systems occur immediately peripheral to or coincident with the boundaries between major rock units or with intrusive contacts.

RANKIN INLET PROJECT
Rankin Nickel Syndicate
comprising:

Nickel, Copper, Gold
55 J/13, 14, K/16
(62°50'N, 92°00'W)

- a) Ensign Oils Limited (33.4%)
now Houston Oils Limited
950, 355 - 4th Avenue Southwest,
Calgary, Alberta.
- b) More Mines Limited (18.6%)
- c) Nahanni Mines Limited (18.6%)
- d) Fort Reliance Minerals Limited (14.7%)
- e) Redstone Mines Limited (14.7%)
all at 915, 25 Adelaide Street East,
Toronto, Ontario.

References:

Bannantyne (1958); Bell (1968); Laporte (1974), Wright (1967)

Property:

30 G, 49 GIN, 25 JAH, 18 L, 11 MR, 16 NEG, 31 OP, 32 RUM, 20 YES, and 28 Z claims	55 J/13
8 MAB claims	55 J/13, K/16
12 T claims	55 J/14
102 CC, 10 E, 10 HAJ, 6 INK, 30 M, 14 P, 17 PEN, 16 PIG, 77 RR, 36 S, 28 VO, and 13 W claims	55 K/16

Location:

The Rankin Nickel Syndicate main holdings, consisting of the CC, HAJ, M, RR, RYE, and VO claims, cover the Kudlulik Peninsula, from the centre of Buff Island northwest to the north shore of the Char River. Two smaller groups, the W and P claims, cover the mainland north-northeast of, and the peninsula north of the Barrier Islands. The PEN and INK groups were staked two miles northwest and three miles north-northwest of the widest part of the Meliadine River. A sixth group of claims, the E and PIG claims, extends inland from the shore of the mainland northeast of Thomson Island. Seven miles of shore northeast of Thomson Passage and Falstaff Island were staked as the JAH, MR, OP and Z claims. The second largest block of claims, comprised of the G, GIN, NEG and RUM claims, extends along the northeast shore of a large lake southeast of Meliadine Lake. The YES claims lie one to two miles north of this group. The L and MAB claims cover the area three to six miles to the northwest. The T claims cover the southern part of a north-trending peninsula, north of Rabbit Island and northeast of the mouth of Rankin Inlet.

History:

On the basis of a turn-of-the-century Geological Survey of Canada report, the Cyril Knight Prospecting Company Limited sent a crew of prospectors into the Rankin Inlet area in 1928. In 1929, six holes put down on a showing discovered the previous year outlined 120,000 tons of ore grading 4.62 per cent nickel, 1.22 per cent copper and 0.11 ounces of platinum per ton. Further diamond drilling was done by the Nipissing Mining Company in 1936 and 1939. The property then remained idle until 1951, when it was acquired by Rankin Inlet Nickel Mines Limited and subjected to magnetic and electro-magnetic surveys. In 1953, a 331 foot shaft was sunk and 2,600 feet of crosscutting and drifting completed. Re-organized as the North Rankin Nickel Mines Limited in 1954, the company began site development in 1955, constructing a 250 ton-per-day concentrating plant and auxiliary buildings. When the first ore was treated on May 23rd, 1957, ore reserves consisted of 447,500 tons of ore grading 3.20 per cent nickel and 0.93 per cent copper, plus an indicated 64,500 tons containing 3.21 per cent nickel and 1.25 per cent copper. The mine closed at the end of the 1962 shipping season, after 21.3 million pounds of nickel and 5.8 million pounds of copper had been produced from 405,753 tons of ore mined. The nickel-copper ore consisted of disseminated to massive pyrrhotite, pentlandite, chalcopyrite magnetite and minor pyrite, located within depressions on the bottom of a serpentinized ultrabasic sill intruded along a contact between sedimentary and volcanic rocks.

Following preliminary geological field investigations by the Rankin Nickel Syndicate, 531 claims were recorded in October and December of 1969. Airborne and ground geophysical and geological work during the summer of 1970 resulted in the recording of another 118 claims in September. On completion of the 1970 ground programs, 247 claims were allowed to lapse. In September 1971 30 G, 49 GIN, 3 MR, 32 RUM 12 T, 46 CC, 2 P, 25 RYE and 17 VO claims were allowed to lapse.

Description:

A westerly-trending fold complex located in intermediate to basic volcanic rocks and derived amphibolite schist and gneiss (unit 7, Wright, 1967) bounded to the north and west by granite, granodiorite and allied rocks, in large part gneissic (unit 13 op. cit.) underlies the Rankin Inlet area. The greenstone assemblage grades to the northwest, into gneiss, schist, amphibolite and granulite (unit 12, op. cit.). Gneissic granite outcrops in the volcanic belt along the axial planes of folds. Quartzite with impure quartzite and gritty sandstone

(unit 9, op. cit.), greywacke with impure quartzite, slate, phyllite and conglomerate (unit 10, op. cit.) and other undifferentiated sedimentary rocks (unit 11, op. cit.) of the Hurwitz Group outcrop locally in the greenstones.

Detailed geological mapping by Bannantyne (1958) indicates the following stratigraphic sequence: a lower volcanic unit comprising andesite to basalt flows with some dacitic flows and interbedded thin bands of tuff and dolomite followed by a sedimentary unit with basal dolomite and siliceous dolomite beds overlain by the pure to impure Marble Island quartzite of Bell (1968, pp. 5 and 6), tuffs and tuffaceous sediments, and an upper volcanic unit consisting of andesite and dacite flows enclosing a thin band of agglomerate. The lower volcanic unit outcrops extensively along the north shore of Rankin Inlet west of Melvin Bay and northwest of Prairie Bay. North of Melvin Bay, the central part of the Kudlulik Peninsula is underlain by the sedimentary sequence, which also outcrops southeast and northeast of a large lake southeast of Meliadine Lake. The upper volcanic unit outcrops south and east of the settlement of Rankin Inlet, at the tip of the Kudlulik Peninsula, on Thomson and Falstaff islands and on the north shore of the inlet where it grades into hornblende gneiss and granitic biotite gneiss. Several basic to ultra-basic sills, one of which contained the North Rankin Nickel Mines Limited ore-body, intrude the volcanic-sedimentary assemblage along the north shore of Rankin Inlet, west of Kudlulik Peninsula and the sedimentary sequence east of Meliadine Lake.

Current Work and Results:

In 1972, a crew from Geoterrex Limited performed induced polarization and electromagnetometer surveys over ten anomalies detected in 1969 on the HAJ, INK, M, PEN, RR and YES claims. Eleven holes, totalling 3,129 feet, were drilled to probe the ten anomalies. Five of the holes intersected graphite zones enclosing disseminated pyrite and pyrrhotite while the other six holes intersected barren sulphide zones in which 5 to 50 per cent of the rock is pyrite or pyrrhotite. The highest assay from the sulphide zones was .08 per cent copper over five feet. A hole on the YES claims intersected a fault-zone at the contact of chlorite schist with quartzite. A 6.5-foot length of core from the fault zone contained .10 ounces of gold per ton.

MORSO ISLAND CLAIMS	Copper, Gold, Silver
Five Star Petroleum & Mines Limited	55 K/2
9918 - 109th Street,	(62°02'30"N, 92°40'W)
Edmonton, Alberta.	

References:

Laporte (1974); Wright (1967)

Property:

18 MAR claims	55 K/2
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Location:

The claims extend southeast across the central part of the southernmost Morso Island, nine miles south-southwest of the settlement of Whale Cove.

History:

Morso Islands were prospected by Tavani Explorations Limited in 1961 but no ground was acquired. The MAR claims were staked by W. Gamblin in September 1969 and transferred to the Whale Cove Copper Mines Limited in December 1970. The claims were acquired from Whale Cove Copper Mines Limited (Laporte, 1974) by Five Star Petroleum & Mines Limited in February, 1971.

Description:

Morso Islands consist of intermediate to basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967), and minor zones of rhyolite, tuff and quartz-mica schist. Two samples collected by Tavani Explorations Limited from a quartz vein assayed 4.88 and 1.03 per cent copper, 9.82 and 1.27 ounces of silver and 0.06 and 0.03 ounces of gold per ton.

Current Work and Results:

Messrs. P.E. Page and Wm. Morrison visited Morso Island in 1971, examined and sampled the showings (Laporte, 1974).

TAVANI - RANKIN INLET PROJECT

Husky Oil Limited,

815 - 6th Street Southwest,

Calgary, Alberta.

55 K/4,6

(62°15'N, 93°30'W)

References:

Bell (1968); Laporte (1974); Wright (1967)

Property:

1 BAOBAB, 1 KOALA and 1 SABLE claims

and prospecting permit 201

55 K/4

Prospecting permit 202

55 K/6

Location:

The three claims are centred five miles west-southwest of Last Lake, within the area of prospecting permit 201. The southwestern prospecting permit 201 (62°07'N, 93°45'W) covers an area extending north-northeast from Southern Lake to Last Lake. Farther to the northeast, the area of prospecting permit 202 (62°27'N, 93°15'W) lies between Maze Lake and the head of Wilson Bay.

History:

Prospecting permits 201 and 202 were acquired in April 1970 and the three claims were staked to cover an air-borne geophysical anomaly investigated in 1972. The two prospecting permits lapsed in 1973.

Description:

The prospecting permits are underlain by intermediate to basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967), enclosed and intruded by gneissic and impure granitic rocks (unit 13, op. cit.), and overlain by bands of white quartzite with some impure quartzite and gritty sandstone (unit 9, op. cit.) and other undifferentiated sedimentary rocks (unit 11, op. cit.) of the Hurwitz Group.

The granitic basement complex outcrops in the north-east quarter of prospecting permit 202 and the southeast corner of prospecting permit 201. The Hurwitz Group metasediments outcrop in a number of narrow elongate belts; the main belt is 3.5 miles wide and trends northeast for 25 miles, crossing the Ferguson River. Shorter, narrow belts trend northeast and east from the north shore of the Wilson River and Whiterock

Lake. Bell (1968) has subdivided the Hurwitz Group into eight units. Pink and white fine-grained orthoquartzite (unit HD, Bell, 1968) and multicoloured mudstones (unit HE, op. cit.) outcrop within the belts north of the Wilson River. To the southeast, the main belt consists of orthoquartzite, mudstones enclosing a gabbro sill (unit HFA, op. cit.) and quartzose, micaceous, feldspathic and lithic sandstone with minor mudstone and conglomerate (unit HG, op. cit.). Gabbroic intrusive bodies outcrop on the north shore of Maze Lake, northeast of Gill Lake within the northeastern permit area and in the north-western corner of prospecting permit 201.

Current Work and Results:

Seven airborne electromagnetic anomalies, detected within the area of prospecting permit 201 in 1970, and nine anomalies, detected within the area of prospecting permit 202, were investigated in 1972. Ground follow-up involved geophysical location surveys and geological mapping. Most anomalies were attributed to diorite-andesite contacts, shear zones, graphitic schist bands or surficial effects.

The only anomaly staked (62°13'10"N, 93°54'W) corresponds to a narrow mineralized fracture zone in andesite intruded by quartz-feldspar porphyry. Fracture zones locally mineralized with pyrite and pyrrhotite outcrop to the north and south of the conductor. Samples from these zones did not contain economic concentrations of metals. Numerous quartz veins trend north in the andesite and are locally mineralized with pyrite and chalcopyrite.

PISTOL BAY CLAIMS

Five Star Petroleum & Mines Limited
9918 - 109th Street,
Edmonton, Alberta.

Copper, Gold, Silver, Nickel
55 K/7
(62°28'N, 92°45'W)

References:

Laporte (1974); Wright (1967)

Property:

21 BEST, 16 BM, 56 CAP, 36 FAR,
14 JER, 68 MAR and 4 ORE claims

55 K/7

Location:

The claim groups cover the area northeast of Pistol Bay.

History:

North Rankin Nickel Mines Limited held the Pistol Bay area under prospecting permit 18 in 1961 and early 1962. Geological mapping and prospecting by Tavani Explorations Limited in 1961 led to the staking of 25 claims in the area now covered by the MAR claims.

The MAR 1 to 36 and 73 to 105 claims were staked by W. Gamblin and J. Gorski in August 1969 and transferred to Whale Cove Copper Mines Limited. Claims MAR 36 to 72 were staked by J. Antoshkiw and transferred to Maroubra Holdings Limited at that time. Five Star Petroleum and Mines Limited acquired the MAR claims from Whale Cove Copper Mines Limited in February 1971. The BM and FAR claims were acquired in August 1971, the CAP claims in May 1972, the JER claims in August 1972 and the BEAT and ORE claims in November 1972.

Description:

A narrow northeast-trending band of intermediate to basic volcanic rocks and derived amphibole schist and gneiss (unit 7, Wright, 1967) intruded to the east and west by gneissic granitic rocks (unit 13, op. cit.) underlie the MAR claims and the west shore of Pistol Bay. Numerous gossans composed of arsenopyrite with minor chalcopyrite and pyrrhotite were sampled by Tavani Explorations Limited. The samples assayed 0.05 to 1.16 ounces of gold per ton. One sample assayed 4.32 per cent copper.

Current Work and Results:

In July 1971, Messrs. P.E. Page and Wm. Morrison prepared a geological evaluation of the Pistol Bay claims, part of which was then surveyed with an electromagnetometer. Six conductors, totalling 7,600 feet, were outlined within the MAR claims. In 1972, exploration involved a magnetic survey and the diamond drilling of eight holes, totalling 989 feet, which were drilled to probe four conductors outlined in 1971 and one showing trenched in 1970 on claim MAR 15 (Laporte, 1974). The holes drilled on electromagnetic anomalies encountered large thicknesses of greenstones containing pyrite, pyrrhotite and minor chalcopyrite as thin fracture fillings and disseminations. The highest grade intersection contained 0.48 per cent copper

and 0.02 per cent nickel over two feet. In the hole on claim MAR 15 a six-inch intersection of massive pyrrhotite and chalcopyrite in a quartz vein was encountered. A two-foot section of the quartz vein assayed 0.18 ounces per ton silver, 0.09 per cent copper and 0.18 per cent nickel.

In 1972, four holes, totalling 348 feet, were drilled on the JER claims to investigate gossan zones and six trenches were blasted. Three holes totalling 105 feet were drilled on the FAR claims.

RANKIN INLET CLAIMS

Five Star Petroleum & Mines Limited
9918 - 109th Street,
Edmonton, Alberta.

55 K/16
(62°53'N, 92°12'W)

References:

Laporte (1974); Wright (1967)

Property:

9 BEE, 72 JAR and 72 JET claims

55 K/16

Location:

The BEE claims cover the west shore and part of Nipissak Lake. The JAR claims straddle the Char River north-east of the Barrier Islands. The JET claims (Laporte, 1974) cover an area centred three miles north of Prairie Bay.

History:

The JET claims were acquired from Husky Oils Limited (Laporte, 1974) by Five Star Petroleum & Mines Limited in January, 1971, the BEE claims from J. Gorski in June, 1971 and the JAR claims from the stakers in August, 1971.

Description:

The claims are underlain by intermediate to basic metavolcanic rocks (unit 7, Wright, 1967).

Current Work and Results:

Numerous short holes were drilled and trenches blasted across gossan zones within the claim groups in 1971 and 1972.

DEE GROUP
Giant Yellowknife Mines Limited
under option to
Freeport Canadian Exploration Company
40 University Avenue,
Toronto, Ontario.

Copper, Zinc, Silver, Gold
55 L/4
(62°04'11"N, 95°52'50"W)

References:

Baragar (1962); Davidson (1970a)

Property:

44 DEE claims

55 L/4

Location:

The DEE claims cover the north shore of a lake centred two miles southeast of Carr Lake.

History:

Sixty-three DEE claims were staked for Giant Yellowknife Mines Limited in August 1960 to cover a copper-zinc showing outlined during a helicopter geological survey. Reconnaissance geological mapping and trenching, done in 1960, were supplemented in 1961 by 272 line-miles of electromagnetic and magnetic surveys, detailed geological mapping and 7,418 feet of diamond drilling.

Description:

Massive and pillowed basaltic and andesitic greenstones (unit Am, Davidson, 1970a) underlying the northern part of the claim group are in contact to the south with felsic tuff, agglomerate and flow breccia (unit Af, op. cit.) and are intruded to the east by massive grey hornblende tonalite (unit 2, op. cit.).

Pyrite, pyrrhotite, sphalerite, chalcopyrite and galena carrying significant zinc, copper, silver and gold values occur in irregular northwest-trending gossan zones within acid fragmental rocks. The surface showings first explored are irregular pod-shaped bodies; one of which consists of massive sulphides and outcrops over an area 130 feet by 30 feet. Channel samples of this zone averaged 10.65 per cent zinc, 0.72 per cent copper and 0.39 ounces per ton silver over 25 feet. A hole drilled to probe the showing at a depth of 200 to 300 feet, intersected only a four-foot section of disseminated chalcopyrite that assayed 1.92 per cent copper.

Two buried mineralized zones were intersected during the diamond drilling. The southerly zone, under the west arm of the lake, was intersected in three holes and has a strike length of approximately 700 feet. The second zone, 1,200 feet to the northwest with a strike length of 600 feet, was intersected in four holes. The best intersections were:

Hole number	Intersection width (feet)	Metal content				
		Au (oz/T)	Ag (oz/T)	Cu (%)	Zn (%)	Pb (%)
<u>Southerly Zone</u>						
6	14	0.025	0.68	0.10	4.25	1.0
7	12				1.35	
14	39	tr	0.21	0.07	2.26	
	10	0.005	0.92	0.04	2.30	
16	6	0.017	1.37	5.05		

Northerly Zone

10	26	tr	0.23	0.03	1.26	
	11	tr	0.49	0.03	3.11	

Current Work and Results:

Freeport Canadian Exploration Company performed an electromagnetic survey over the claims in 1972, in preparation for a drilling program to be performed in 1973.

PROSPECTING PERMIT 102	Copper, Zinc, Gold
Republic Resources Limited	55 L/6
330 - 5th Avenue Southwest,	(62°22'N, 95°15'W)
Calgary, Alberta.	

References:

Davidson (1970a); Laporte (1974)

Property:

88 A claims and prospecting permit 102 55 L/6

Location:

The A claims were staked to cover the anomalies detected in 1970 (Laporte, 1974) on the west shore of the northwest arm of Kaminak Lake, two miles south and eight miles southeast of O'Neil Lake. The permit area extends north from Kaminak Lake and includes the northwest arm of Kaminak Lake, Savage Lake and the greater part of O'Neil Lake.

History:

The area acquired by Republic Resources Limited in 1969 as prospecting permit 102, was held as prospecting permit 5 by Giant Yellowknife Mines Limited in 1961 and early 1962. The original permit was acquired subsequent to an extensive mapping program performed in 1960. Detailed geological mapping, electromagnetic and magnetic surveys, trenching and diamond drilling were carried out over three sulphide zones within the permit area in 1961. Disseminated to massive pyrite and trace chalcopyrite and graphite occur at the contacts of agglomerate with metasediments and andesite, and of andesite with a granitic sill two miles south of O'Neil Lake at 62°24'47"N and 95°06'53"W. A strong electromagnetic anomaly was traced for 2,800 feet along the west contact of the granitic sill. An 85-foot hole drilled on the anomaly intersected massive pyrrhotite stringers with traces of chalcopyrite which assayed 0.04 per cent copper and 0.16 per cent zinc over one foot. One and a half miles to the southwest (62°23'27"N, 95°05'27"W), four holes, totalling 276 feet, were drilled under gossan zones where pyrite, pyrrhotite, minor chalcopyrite and sphalerite occur as stringers and disseminations in andesite. Two surface samples assayed 0.81 and 0.57 per cent zinc but the best drill hole intersection assayed only 0.10 per cent copper over one foot. The third showing (62°04'08"N, 95°23'06"W), on the north shore of the northwest arm of Kaminak Lake, consists of west- to northwest-trending shear zones and quartz veins with minor pyrite and chalcopyrite. Surface samples assayed 1.3 per cent copper and 0.13 ounces of gold per ton but the best intersection encountered in the drilling of five holes, totalling 349 feet, was 0.03 per cent copper and 0.30 ounces of gold per ton.

The A claims were staked in February, 1972. Prospecting permit 102 lapsed in April, 1972.

Description:

The permit area covers metamorphosed volcanic and sedimentary rocks of the Kaminak Group, intrusions of gabbroic

to monzonitic rocks and a narrow syncline of Hurwitz Group sedimentary and volcanic rocks.

Massive and pillowed basaltic to andesitic greenstones (unit Am, Davidson, 1970a) and mafic flows with intercalated felsic flows and tuffs (unit Av, op. cit.) of the Kaminak Group outcrop in the southern quarter of the permit area and along an axis trending north along the eastern shore of O'Neil Lake. A narrow east-trending band of felsic tuff, agglomerate and flow breccia (unit Af, op. cit.) occurs within the greenstones near the north shore of Kaminak Lake. The central part of the permit area is underlain by greywacke and slate (unit As, op. cit.), the sedimentary unit of the Kaminak Group.

Two large masses of hornblende gabbro or diorite (unit 1, op. cit.) outcrop in the northwestern and northeastern corner of the permit area and border the narrow north-trending band of basaltic and andesitic greenstones. The western gabbro intrusion extends south of O'Neil Lake to the central part of the permit area. A major intrusion of massive biotite adamellite (unit 3, op. cit.) extends southwest from the southern shore of O'Neil Lake. Southeast of this lake, a five- by eight-mile area is underlain by massive hornblende tonalite (unit 2, op. cit.). Smaller intrusions of adamellite and tonalite outcrop in the greenstone belt in the southern part of the permit area.

The Hurwitz Group sedimentary and volcanic rocks outcrop in the permit area as a one- to two-mile wide syncline trending east-northeast from the southwest corner of the area. The polymictic conglomerate, greywacke and impure sandstone (unit Aha, op. cit.) basal member of the group that outcrops to southwest, is in contact with Kaminak Group units, small intrusions of tonalite and adamellite and the thin-bedded orthoquartzite (unit Ahb, op. cit.) in the core of the syncline. The basal unit is absent farther to the east, where the orthoquartzite unconformably overlies tonalite and mafic flows. The two upper members of the Hurwitz Group, slate, siltstone, greywacke (unit Ahc, op. cit.) and massive and pillowed andesitic greenstones (unit Ahd, op. cit.) outcrop along the axis of the syncline.

Current Work and Results:

A 480 line-mile scintillometer survey flown in 1971 along north-trending lines at 500 foot intervals covered the eastern part of prospecting permit 102. Two small anomalies were outlined over greenstones which are in fault-contact with Hurwitz Group quartzites, four miles northwest of the eastern part of Kaminak Lake.

MUNRO LAKE PROJECT
Selco Mining Corporation Limited
55 Yonge Street,
Toronto, Ontario.

Silver, Copper, Zinc
55 L/8
(62°25'30"N, 94°10'W)

Reference:

Davidson (1970a)

Property:

50 unnamed claims

55 L/8

Location:

The claims cover the area northeast of Munro Lake and west of the northern part of Helika Lake.

History:

Messrs. G. Heroux and L. Surprenant spent two weeks in 1972 prospecting the north shore of Munro Lake. The 50 claims they staked were optioned by Selco Mining Corporation Limited in March, 1973.

Description:

The western half of the claims are underlain by considerable glacial drift that covers felsic tuffs, agglomerate and flow breccia (unit Af, Davidson, 1970a) which outcrop in the eastern half and to the west of the claim group. Massive and pillowed basaltic and andesitic greenstones (unit Am, op. cit.) outcrop to the north and south of the east-northeast-trending felsic volcanic rocks. A major northwest-trending fault cuts across the western part of the claim group.

Current Work and Results:

Messrs. Heroux and Surprenant discovered trains of felsic volcanic boulders containing disseminated pyrite and chalcopyrite. A sample assayed 0.02 ounces per ton gold, 3.50 ounces per ton silver, 5.50 per cent copper, .01 per cent lead and 1.83 per cent zinc.

QUARTZITE LAKE PROJECT
Kaminak Lake Syndicate
c/o R.A. Sibthorpe,
1458 Blane field Road,
Mississauga, Ontario.

Copper, Molybdenum
55 L/8
(62°22'N, 94°27'W)

Reference:

Davidson (1970a)

Property:

20 unnamed claims

55 L/8

Location:

Twelve claims cover part of the north shore of Quartzite Lake. Eight claims were staked between Quartzite and Snug lakes.

History:

The claims were acquired by the Kaminak Lake Syndicate during a prospecting campaign in the summer of 1972.

Description:

The area north of Quartzite Lake is underlain mainly by massive or pillowed basaltic and andesitic greenstones with intercalated mafic pyroclastic rocks (unit Am, Davidson, 1970a), in contact, along the shore, with greywacke, slate, tuff and volcanic pebble conglomerate (unit As, op. cit.) and felsic tuff, agglomerate and flow breccia which are associated with quartz and quartz-feldspar porphyry intrusions (unit Af, op. cit.). The felsic unit also outcrops along the east shore of the lake, in fault contact with hornblende schist and amphibolite (unit Am', op. cit.).

Current Work and Results:

Three grids established on the north shore of Quartzite Lake were surveyed using a very-low-frequency electromagnetometer and magnetometer, and mapping and soil sampling was done. A number of gossans containing minor chalcopyrite and molybdenite were discovered. Electromagnetic conductors corresponding to the gossans were traced over short distances. The claims to the east cover faulted felsic volcanics.

KILGOUR-PUGSLEY PROSPECTING PROGRAM

Mr. Joe Kilgour,
1501 Woodbine Avenue,
Apt. No. 1712,
Toronto 13, Ontario.

55 L; 65 H, I

Mr. William Pugsley,
R.R.#1,
Dunchurch, Ontario.

References:

Bell (1971); Davidson (1970a); Wright (1967)

Property:

No property was acquired

Location:

Messrs. Kilgour and Pugsley prospected the area north of Munro Lake to Townsend Lake in 1971 and the area north and west of Yandle Lake in 1972.

History:

They participated in D.I.A.N.D.'s Prospectors Assistance Program.

Description:

The areas prospected are underlain mainly by massive or pillowed basaltic and andesitic greenstones (unit Am, Davidson, 1970a and Bell, 1971) and their metamorphosed equivalent hornblende schist and amphibolite (unit Am', op. cit.), mafic flows with intercalated felsic flows and tuffs (unit Av, op. cit.) and intercalated amphibolitic and quartzofeldspathic schist (unit Av', op. cit.), and felsic tuff, agglomerate, flow breccia and associated quartz-feldspar porphyry intrusions (unit Af, op. cit.) of the Kaminak Group. Greywacke and slate with minor tuff and volcanic pebble conglomerate (unit As, op. cit.), the sedimentary member of the group, were also noted in some of the areas prospected.

The Kaminak Group units are intruded by gabbro, diorite, hornblende tonalite and biotite adamellite (units 1,2,3, op. cit.) and are part of a major greenstone belt trending east to northeast in the area north of Kaminak Lake.

Current Work and Results:

A large number of pyrite-pyrrhotite gossan zones were prospected in 1971 and 1972. Minor amounts of gold, chalcopyrite and sphalerite were found in some of the gossan zones. Chalcopyrite and malachite were found in quartz veins. One chalcopyrite and pyrrhotite gossan was trenched and surveyed with an electromagnetometer but no conductors were outlined.

PROSPECTING PERMIT 176	Copper
Prudhoe Bay Oils Limited	65 I/4
108, 627 - 6th Avenue Southwest,	(62°10'N, 97°54'W)
Calgary 1, Alberta.	

References:

Laporte (1974); Wright (1967)

Property:

18 K claims and prospecting permit 176 65 I/4

Location:

The claims were staked at the south edge of a group of lakes, in the northwest corner of prospecting permit 176 and 10 miles northwest of Imikula Lake. Prospecting permit 176 covers the area extending north from the centre of Imikula Lake and west from the centre of a large lake trending 12 miles to the north-northeast.

History:

Prospecting permit 176 was acquired in 1969 and lapsed in April 1972 at which time the K claims were recorded and transferred to Columbian Northland Exploration Limited.

Description:

Two northeast-trending greenstone belts and one north-northeast-trending metasedimentary belt underlie the permit area. The main zone of intermediate to basic volcanic rocks and their metamorphic derivatives (unit 7, Wright, 1967) that underlie the northwest quarter of the area, are part of a five- to twenty-five-mile wide belt extending for 100 miles from Sutcliffe Lake to east of Yathkyed Lake. A second meta-

volcanic belt, two to three miles wide and 16 miles long, lies southeast of the main belt in the south and central parts of the permit area. A five- to six-mile wide band of granite, granodiorite and related gneissic rocks (unit 13, op. cit.) separates the two belts. The granitic rocks also outcrop in the southeastern corner of the area. Greywacke, impure quartzite, slate, conglomerate, dolomite, limestone and minor schist (unit 19, op. cit.) of the Hurwitz Group outcrop west and north of Imikula Lake and southeast of the smaller greenstone belt.

Current Work and Results:

The southwestern one-mile long anomaly outlined in 1970 (Laporte, 1974) was subjected to a ground magnetic survey in 1971. A gossan zone, $\frac{1}{4}$ -mile to the southeast, was trenched. Samples from this zone of disseminated pyrite and pyrrhotite in metavolcanic rocks contained up to 0.06 per cent copper. Massive and disseminated magnetite was detected in a number of areas of magnetic highs which in three areas are flanked by very low readings.

CENTRAL DISTRICT OF KEEWATIN

TMT PROJECT	Uranium, Copper, Silver,
Pan Ocean Oil Limited,	Lead, Zinc
1050 Three Calgary Place,	55 M/11,12; 65 P/9,10
355 Fourth Avenue Southwest,	(63°37'N, 96°15'W)
Calgary, Alberta.	

References:

Donaldson (1965); Laporte (1974); Wright (1967)

Property:

6 ACE, 20 BIS, 1 CAN, 18 FAR, 5 FIRE,	
21 JET, 22 KEN, 21 LAURINE, 6 LIZ,	
5 MAC, 7 PEG, 15 PIC, 23 PAT,	
36 RANADA, 8 SOB, 96 TM, and 12 ZAP	
claims and prospecting permit 208	55 M/12
Prospecting permit 212	65 P/9
31 TM claims and prospecting	
permit 213	65 P/10

Location:

The westerly-trending area covered by the claims and prospecting permits extends from west of Parker Lake to east of the mouth of the Kunwak River and encloses Thirty Mile Lake.

The main claim group extends north-northeast from the bend in Kazan River south of the Kazan Falls. A second group covers the western shore of the lake at the foot of the falls. The third group, 25 miles southwest of the falls, extends north from the shore of Thirty Mile Lake.

History:

Of the 206 claims retained by the company after 1970 (Laporte, 1974), 54, the FAR and RANADA groups were allowed to lapse in late 1971. Twenty BIS claims and 127 TM claims were added to the company's holdings in October, 1972. The three prospecting permits lapsed in April, 1972.

Description:

The project area covers part of the southern edge of a major belt of Dubawnt Group sedimentary and volcanic rocks, trending west-southwest from Baker Lake. Granite, granodiorite

and gneiss (unit 13, Wright 1967) underlie the southern half of the prospecting permits' area. A few small diorite and gabbro bodies (unit B, op. cit.) intrude the basement complex in the eastern part of the area.

Arkosic sandstone of the Kazan Formation (unit 3, Donaldson 1965), unconformably overlying the basement, outcrops at the western border and in the northeastern corner of the project area. The sandstones are overlain by the Christopher Island Formation, porphyritic trachyte, andesite and latite flows, which enclose minor rhyolite, agglomerate and tuffaceous sandstone (unit 4, Donaldson, 1965). Both the basement and Dubawnt Group rocks are intruded by a northwest-trending 400-foot wide diabase dyke (unit 23, Wright 1967).

Current Work and Results:

In early 1971, a low-level helicopter-borne magnetic survey, totalling 1,477 line-miles, was flown over prospecting permit 208, the claim groups and the eastern half of prospecting permit 212 along lines at 1/8-mile intervals. Detailed and reconnaissance geological mapping of selected areas and a complementary ground magnetic survey together with reconnaissance and detailed geochemical soil and water sampling surveys were performed over the claim groups and prospecting permit 208. The soil samples were analyzed for copper, lead and total heavy metals in the field and for uranium, copper and lead at a commercial laboratory. The water samples were analyzed for radon. Three diamond drill holes, totalling 1,043 feet, were drilled near the 68-4 showing (65°71'N, 95°46'W) (Laporte, 1974). One hole 647 feet long was drilled vertically on the eastern shore of the Kazan River, near the faulted margin of the sedimentary Dubawnt Group basin. Only barren sediments were intersected in this hole.

Showing 68-4, which was geologically mapped, consists of a folded, steeply-dipping assemblage of very fine-grained feldspar-quartz-biotite paragneiss enclosing numerous bands of fine- to medium-grained amphibolite, massive, well foliated, medium- to coarse-grained hornblendite and lenticular bodies of coarse-grained leucocratic metasomatic granite laced with quartz veinlets. Cataclastic zones in the assemblage are characterized by massive quartz augen gneiss. Regional geology and aeromagnetism suggest the presence of an anticlinal structure extending east from the showing. North- to northeasterly-striking shears and associated tension fractures cut all rock types, contain pitchblende and are marked by hematitic discoloration of wall rock.

One hole was drilled to intersect a radioactive fracture system traced southward 2,000 feet from showing 68-4. Surface exposures at the drill site enclose a one-foot wide, north-trending zone of east-dipping fractures containing minor pitchblende, chalcopyrite, pyrite and calcite. Several narrow fracture zones were encountered in the hole but all were barren. The other two holes were drilled on the east shore of the Kazan River, west of 68-4 showing, to test a northeast-trending breccia zone at the intersection of two near vertical north-east-trending faults. On the surface, smears of pitchblende occur along fracture planes within a calcite stockwork but only sparse and erratic radioactive responses were encountered in the breccia intersections of the two cores.

A new uranium showing was discovered 7,000 feet south-east of showing 68-4, on what appears to be the southern limb of the anticlinorium. The only outcrop between showings 68-4 and 68-4A (63°41'45"N, 95°43'W) also has radioactive occurrences. In the area of showing 68-4A, the feldspar-quartz-biotite paragneiss is intruded by east-trending dykes of meta-diabase. Uranium concentrations occur in north-trending fractures. Samples containing up to 7.60 per cent uranium oxide were collected from the contact between the gneiss and meta-diabase.

Soil samples from three areas, along a line extending south from showing 68-4A, were found to contain anomalous concentrations of uranium, copper and, in one area, total heavy metals. Cutting across the trend of these anomalies is a southeast-trending radon anomaly.

North of the 68-4 showing, an east-trending, 40- to 100-foot wide dyke of biotite trachyte intrudes the faulted contact between Christopher Island volcanics and the underlying sandstone. Hematization of the intrusion occurs widely in company with northeast- and southeast-trending shears. At the eastern end of the dyke, a hematized zone 300 feet long trends southeast and contains yellow uranium oxide smears where it is intersected by northeast-trending fractures. A grab sample of this material assayed 0.52 per cent uranium oxide, 0.04 per cent copper and 0.08 ounces of silver per ton. Two other geochemically anomalous zones were located during the survey.

Reconnaissance soil sampling was continued in the project area during 1972. Two anomalous areas outlined in 1971 were re-sampled and the results of the total heavy metals determinations are generally comparable. Copper anomalies detected in 1972 were attributed to the basal conglomerate of

the Kazan Formation. Some total heavy metals anomalies correspond to non-radioactive pyritic quartz veins and galena-bearing quartz-calcite veins.

Three major total heavy metals anomalies were detected during 1972. One of these anomalies (63°38'N, 96°41'30"W), on the north shore of Thirty Mile Lake, in the eastern part of prospecting permit 213, consists of several peaks situated on the down-ice side of an east-northeast-trending fracture system, in fine-grained feldspathic gneiss and cross-cutting diabase bodies. Sugary-textured quartz and minor calcite occur in 12-inch wide veins along with massive galena, disseminated chalcopyrite and pyrite. Disseminated pyrite also occurs in the contact rock. Sparse boulangerite occurs in vuggy quartz-barite vein fillings. Grab samples collected from various veins assayed as follows:

	Ag oz/ton	Cu (%)	Pb (%)	Zn (%)	Sb (%)
galena vein	4.01	0.87	42.49		0.25
pyritic barite- chlorite breccia	0.37	0.01	1.08	0.04	
pyrite-galena- quartz vein	1.42	0.08	18.2	8.05	
chalcopyrite- quartz-feldspar breccia	0.70	0.84	0.57	0.02	
chalcopyrite- quartz vein	0.75	2.34	0.46	0.01	

PROSPECTING PERMIT 103
 Republic Resources Limited
 330 - 5th Avenue Southwest,
 Calgary, Alberta.

65 P/13
 (63°52'N, 97°45'W)

References:

Laporte (1974); Wright (1967)

Property:

Prospecting permit 103

65 P/13

Location:

The prospecting permit, 60 miles southwest of the settlement of Baker Lake, covers the southwestern shore of Princess Mary Lake and most of the islands in the lake.

History:

The prospecting permit was acquired by Republic Resources Limited in 1969 and lapsed in April 1972.

Description:

All but the northwest corner of the permit area is underlain by feldspar porphyry (unit 20, Wright, 1967) of the Dubawnt Group. The underlying feldspathic sandstone (unit 19, op. cit.) outcrops on a small peninsula opposite the largest island on Princess Mary Lake. The southwestern part of this island is composed of the conglomerate (unit 21, op. cit.), which overlies the porphyritic volcanics. During the 1970 field program, the conglomerate unit was divided into two sub-units by the exploration geologist. A lower volcanic conglomerate with porphyritic volcanic inclusions and an upper quartz pebble conglomerate were recognized. Epidotized impure granite of the basement complex outcrops on the mainland, west of the island.

Current Work and Results:

A scintillometer survey, totalling 200 line-miles, was flown in the western part of the prospecting permit in 1971. Three patterns of radioactivity are apparent: in the southern and eastern half of the area surveyed, readings range from 15 to 35 milliroentgens per hour (MR/HR) and reflect the presence of acid porphyry intrusions of the Dubawnt Group; along the west-central portion and in the northwestern corner of the area, the readings range from 10 to 25 MR/HR and reflect older granitic rocks- and in a section trending north-northwest across the area, a trough of low readings reflects the presence of sedimentary rocks. Four anomalously high values within the trough correspond either to uranium concentrations, or porphyry intrusions.

BL PROJECT
Pan Ocean Oil Limited
1050 Three Calgary Place,
355 - 4th Avenue Southwest,
Calgary, Alberta.

Uranium, Molybdenum,
Copper, Silver
55 M/16; 56 D/2,3,6,7,8
(64°04'N, 94°34'W)

Reference:

Laporte (1974); Donaldson (1965)

Property:

Prospecting permit 98	55 M/16
450 BL claims and prospecting permit 109	56 D/2
30 EDNA, 15 JET and 30 MARY claims	56 D/3
Prospecting permit 209	56 D/6
Prospecting permit 210	56 D/7
Prospecting permit 211	56 D/8

Location:

The prospecting permit and claims are along the eastern and northeastern shore of Baker Lake 50 miles east of the settlement of Baker Lake. Prospecting permit 109 extends west from eight miles west of the east shore of Baker Lake. It covers part of the northeastern and southeastern shores of the lake and the western half of Christopher Island. Prospecting permit 98 is located to the southeast of this permit while prospecting permits 209 to 211 form an east-trending belt to the north. The EDNA, JET and MARY claims cover parts of the shore of Baker Lake to the west of prospecting permit 109. The BL claims cover the western half of Christopher Island and the north shore of the North Channel.

History:

Prospecting permits 98 and 109 were acquired by the New Continental Oil Company of Canada Limited and Marwood Petroleum Limited in early 1969 to cover radioactivity anomalies detected during a survey flown in 1968. Prospecting permits 209, 210 and 211 and the EDNA, JET and MARY claims were acquired by the New Continental Oil Company of Canada Limited in 1970, subsequent to a second airborne survey flown in 1969. Prospecting permits 98 and 209 to 211 were relinquished in 1971. The three original claim groups were allowed to lapse that same year. The BL claims were staked in October 1971 to cover the showings discovered during the previous season's work. Prospecting permit 109 expired in April 1972.

Description:

Detailed and semi-detailed geological studies undertaken in 1971 did not alter the interpretation of the regional geological setting (Laporte, 1974), but helped clarify the detailed picture. The northern group of BL claims is underlain by the metamorphic equivalents of calcareous fine-grained pelitic sediments. Four main rock types were identified: closely-laminated, very fine-grained, equigranular plagioclase-hornblende gneiss with disseminated pyrite and minor pyrite-rich bands; closely-laminated fine-grained feldspar-quartz gneiss; leucocratic, medium- to coarse-grained anorthite gneiss and marble containing 10 or more per cent diopside and fine to coarse garnet porphyroblasts; and well-foliated coarse-grained pyroxene gneiss composed of diopside and tremolite with minor serpentine, chlorite and sulphides, including chalcopyrite.

Flexural zones and shears cut the gneiss in north and northwesterly directions. Only westerly- to northwesterly-trending late tension faults are mineralized with calcite and sporadic unidentified radioactive minerals. One prominent strike fault and mylonite zone that has a westerly trend in the central part of the BL group, is mineralized in three locations. Narrow unaltered felsite, lamprophyre, biotite syenite and diabase dykes intrude the gneisses and range from moderately jointed to faulted and brecciated bodies.

The southwestern part of Christopher Island consists mainly of thick-bedded arkosic sandstones. Younger beds, consisting of sandstone with intercalated silt or mudstone and intraformational granite pebble conglomerate, outcrop to the north in northwest-trending fault blocks. Along the northern shore of the island, the sandstone is overlain by a well-stratified, steeply-dipping sequence of tuffaceous arkose, sedimentary breccia and mudstone. A massive lithic tuff and agglomerate unit, composed primarily of feldspar porphyry and rhyolite fragments, overlies the sedimentary breccia unit in the north and the sandstone unit in the southeast part of the area.

The sandstone and lithic tuff units are cut by thick irregular dykes of biotite trachyte, in the northwest part of the area. Flow sheets and extrusive bodies of mottled rhyolite and biotite porphyry also overlie the sandstone. Diffuse patches, tens of feet wide, of these fractured, hematite- and calcite-rich lavas are mildly radioactive (200 c.p.m.). Narrow discontinuous dykes of rhyolite that cut the sandstone strike northwest. Continuous, but faulted,

northwest-trending diabase dykes, up to 115 feet thick, cut the Kazan and younger rocks along anticlinal axes. The diabase is generally unaltered, sparsely jointed and weakly sheared along its contacts.

Current Work and Results:

In 1971, a detailed airborne magnetic survey, totaling 390 line-miles, was flown along lines at 1/8-mile intervals. The results of this survey and a detailed ground magnetic survey were used during the geological mapping of western Christopher Island and selected areas on the north shore. Orientation, reconnaissance and detailed soil geochemical surveys and a lake water and soil radon survey were also conducted. The geochemical surveys indicate that the field determination of the total heavy metals and copper content of soil collected from frost-boils is a useful indicator of uranium mineralization in the area. A survey of the radon content of lake waters indicates this method is largely inconclusive unless used with other methods of investigation, though it might be a valid method to use in reconnaissance work over large tracts of land. Four new areas of uranium concentrations were discovered. Three showings investigated previously (Laporte, 1974) were mapped.

The 68-2 showing (64°10'11"N, 94°33'25"W) (Laporte, 1974) occurs in a felsite dyke intruding a 1,500-foot wide belt of southward-dipping fine-grained hornblende-feldspar gneiss interlaminated with feldspathic gneiss, mica schist and garnetiferous quartz-hornblende gneiss. The 30- to 40-foot wide felsite dyke is exposed for 750 feet and trends northwest into tundra, where it continues for approximately 200 feet. At the south end, it abuts against a southeast-trending shear. Most of the simple unbranching dyke consists of sugary-textured, micro-crystalline felsite, rich in calcite and pyrite having a variable number of chloritic inclusions and secondary quartz. To the southwest, the dyke consists of reddish rhyolite with strong flow banding. In some places the dyke is felsite porphyry with corroded laths of sanidine and lesser amounts of pyrite and calcite. A well-developed breccia zone in the centre of the dyke is the most radioactive portion of the structure (Laporte, 1974).

Three of the new showings occur on the north shore within the basement complex. Showing 71-1 (64°09'15"N, 94°30'45"W) consists of an anomalously radioactive 750-foot long felsite dyke striking 135° in fine-grained feldspathic gneiss. The fine-grained to microcrystalline dyke rock has orange coloured feldspar in the matrix and 20 per cent glassy green

sanidine as phenocrysts and as a constituent of the matrix. Showing 71-3 (64°08'45"N, 94°35'W) consists of a radioactive shear zone in gneiss. A sample of the sheared rock assayed 0.52 per cent uranium oxide.

The most interesting of the discoveries on the north shore, showing 71-2 (64°09'N, 94°33'W), consists of an area 450-feet by 700-feet of tectonic breccia in well-laminated, very fine-grained, locally porphyroblastic cordierite gneiss which is well mineralized with graphite and pyrite as disseminations and fine veinlets. Blocks and fragments in the breccia show mild rotation to chaotic attitudes and are partly cemented by lamprophyre dykes, chloritic silicate cement and, mainly, by calcite and drusy quartz. Radioactivity is detectable over much of the breccia mass. Botryoidal pitchblende fills interfragmental crevices. Samples collected from shallow trenches assayed up to 0.153 per cent uranium oxide and 0.13 per cent thorium oxide.

The northwestern tip of Christopher Island, in the vicinity of showing 69-9A (64°06'42"N, 94°37'12"W), is underlain predominantly by coarse arkosic sandstones of the Kazan Formation. Younger clastic sediments containing volcanic ejecta overlie or occur in fault-contact with the arkoses. Massive non-bedded tuff, tens of feet thick, occurs structurally removed from and stratigraphically above the clastic sediments. Numerous showings and zones of radioactivity, which contain disseminated pyrite and chalcopyrite and malachite stains, occur in the tuff bed. A 400-foot wide and 2,400-foot long dyke-sill complex of biotite trachyte intrudes the sandstone and tuff. Northwest-trending chloritized shear zones at the western extremity of the complex carry pitchblende and copper minerals (Laporte, 1974).

Secondary uranium minerals and anomalous radioactivity can be traced along the contacts of the dyke for its whole length. Samples of the dyke, near its contact with tuff, assayed up to 0.195 per cent uranium oxide, 3.14 ounces per ton silver and 1.93 per cent copper. A nearby sample of tuff assayed 1.16 per cent uranium oxide, 7.86 ounces per ton silver and 0.47 per cent copper.

A major northwest-trending diabase dyke and the adjacent sandstone exhibit discontinuous radioactivity, where their contact is sheared and fractured. Copper stain and visible sulphides, such as chalcopyrite and chalcocite, are also present. A sample from showing 71-4 (64°04'30"N, 90°31'W), the main occurrence of this type, assayed 0.309 per cent uranium oxide and 2.29 per cent copper. Little work was done on this last showing.

WEST KETYET RIVER PROJECT	Molybdenum, Lead
Aquitaine Company of Canada Limited,	56 D/10, 11, 12
2000, 540 - 5th Avenue Southwest,	(64°37'N, 95°15'W)
Calgary, Alberta.	

References:

Laporte (1974); Wright (1967)

Property:

Prospecting permit 272	56 D/10
20 DUB, 30 MOL, 6 PYR and	
5 RYP claims	56 D/11
12 MAC and 18 TAC claims	56 D/12

Location:

Prospecting permit 272 covers the area extending east from the Ketyet River for 14 miles. The TAC claims, five miles east of Whitehills Lake, and the MAC claims, 11 miles south-east of the lake were staked to cover areas west of the DUB, MOL, PYR and RYP claim group which is centred 10 miles south of Tehek Lake.

History:

In August 1971, the MAC and TAC claim groups and one RYP claim were added to the company's holdings which had been acquired in 1969. Prospecting permit 272 was acquired in April 1972 and relinquished in 1973.

Description:

Prospecting permit 272 covers the northeastern end of a five- to eight-mile wide belt of undifferentiated Hurwitz Group sediments (unit 11, Wright 1967), enclosed in the granitic basement complex (unit 13, op. cit.). The central part of the permit is underlain by quartzite, some impure quartzite and gritty sandstone (unit 9, op. cit.). The MAC claims were staked in the southern part of the belt and are underlain by undifferentiated sedimentary rocks. The DUB, MOL, PYR and RYP claim groups trend northeast across a tongue of undifferentiated metasediments which extends north from the main belt.

The TAC claims cover the northeastern part of an east-trending belt of quartzite, greywacke and impure quartzite (unit 10, op. cit.), lying east of Whitehills Lake.

Current Work and Results:

In 1971, ground electromagnetic and magnetic surveys and geological mapping were performed over the claim groups. Eight diamond drill holes, totalling 633 feet, were drilled to test three anomalies detected in 1970 on the main claim group (Laporte, 1974). Work in 1972 consisted of reconnaissance geological mapping, ground geophysical surveys, trenching and geochemical sampling on prospecting permit 272.

The various geophysical anomalies investigated and the gossan zones staked, are all associated with two- to nine-foot thick bands of schist containing disseminated pyrite and minor pyrrhotite interbedded with quartzose sediments. On the MOL claims, a molybdenite-bearing quartz vein was trenched but was found to be too narrow to be of interest. Three small pockets of galena were trenched on either side of the Quoich River, within the north-central part of prospecting permit 272. In all three cases, the galena occurrences cover an area of less than 10 square feet.

AMER LAKE PROJECT	Uranium
Aquitaine Company of Canada Limited,	66 H/10
2000, 540 - 5th Avenue Southwest,	(65°37'N, 96°45'W)
Calgary, Alberta.	

References:

Laporte (1974); Wright (1967)

Property:

3 BRE, 2 BRI, 17 BRO, 6 BRU, 6 BRY	
36 PRO claims and prospecting	
permit 200	66 H/10

Location:

The area of prospecting permit 200 extends east from the southeastern part of Amer Lake to six miles west of a north-flowing tributary of the Meadowbank River. The BRE, BRI, BRU and BRY claim groups cover the southwestern shore of Amer Lake and the BRO and PRO claims an area centred six miles to the northeast.

History:

The claim groups were staked in the summer of 1969 and prospecting permit 200 was acquired in early 1970. Uranium showings detected during an airborne radioactivity survey and prospected in 1969 were diamond drilled in 1970 (Laporte, 1974). Prospecting permit 200 was relinquished in 1970 and 31 BRE, 2 BRU and 5 BRY claims were allowed to lapse.

Description:

The prospecting permit and claim groups cover part of a 12-mile wide belt of Hurwitz Group metasediments trending east-northeast within granite, granodiorite and allied rocks (unit 13, Wright, 1967). The southern half of the permit area and the claims are underlain by white quartzite with some impure quartzite and gritty sandstone, minor intercalated pebbly conglomerate and siliceous iron-formation (unit 9, op. cit.) and greywacke, impure quartzite, slate, phyllite, and conglomerate (unit 10, op. cit.). Three main northwest-trending faults disrupt the metasediments and extend into the basement complex. Detailed mapping in 1970 divided the metasedimentary sequence into four units: basal white quartzite, crystalline limestone, schist and upper pink-grey quartzite. In the western part of the area, the sequence is basal quartzite, crystalline limestone and interbedded upper quartzite and schist.

Current Work and Results:

Geological mapping, lake sediment and geochemical sampling and scintillometer prospecting were carried out on the BRE, BRI, BRU and BRY claims in 1972. Pure white quartzite overlain by weakly schistose greywacke underlie the claim groups. The greywacke includes radioactive, discontinuous horizons and lenses one or two inches thick. The geochemical work was inconclusive.

NORTHERN DISTRICT OF KEEWATIN

WAGER BAY - HAYES RIVER PROJECT	Copper, Nickel
Aquitaine Company of Canada Limited	56 J/11,12, K/3,6,7,10,11,16
2000, 540 - 5th Avenue Southwest,	(66°37'N, 92°30'W)
Calgary, Alberta.	

Reference:

Heywood (1961)

Property:

15 AFE claims	56 J/11
20 HEB claims and prospecting permit 234	56 J/12
30 ENG claims	56 K/3
82 DAS, 14 JAC and 33 STU claims and prospecting permit 231	56 K/6
36 HAR claims and prospecting permit 232	56 K/7
8 ADN claims and prospecting permit 233	56 K/10
91 IGY claims	56 K/10,11
18 ARN claims	56 K/16

Location:

Prospecting permits 231 to 233 and the ENG, DAS, JAC, STU, HAR, ADN and IGY claims cover an area centred 25 miles north-northwest of Laughland Lake. Prospecting permit 234 straddles the Hayes River to the east. The remaining claim groups cover areas four to eight miles east of the river.

History:

In 1970, Aquitaine Company of Canada Limited commenced exploration on a portion of a metasedimentary-metavolcanic belt in the Hayes River area and staked 347 claims in August and September. The prospecting permits were acquired in April 1971 and relinquished in 1973.

Description:

The Hayes River area is underlain by a northeast-trending belt of greenstone, greenschist, hornblende schist, amphibolite and biotite schist and gneiss (unit 1, Heywood, 1961), and schist and gneiss derived from sedimentary rocks (unit 1b, op. cit.). This metasedimentary-metavolcanic belt

is bordered to the north and south by mixed gneiss and granitic gneiss (unit 5, op. cit.), which also outcrop within the belt north and northwest of Laughland Lake and west of the Hayes River. Numerous small ultrabasic plugs (unit 7, op. cit.) intrude the metasedimentary and metavolcanic rocks.

Geological mapping by Aquitaine Company of Canada Limited in 1971 and 1972 indicates that the belt is composed predominantly of sedimentary rocks: pure white quartzite, a variety of quartzose sedimentary rocks, biotite schist, grey-wacke and, locally, garnetiferous schist. Iron-formation, composed of interbanded magnetite and quartz in beds from 3 to 650 feet wide, is fairly common. The rare volcanic rocks in the belt have been metamorphosed into massive to weakly foliated amphibolite. The ultramafic intrusions, originally ranging in composition from dunite to pyroxenite, are now largely serpentinized and enveloped in talc schist.

Current Work and Results:

A 2,556 line-mile combined electromagnetic and magnetic survey was flown in 1971, along lines at $\frac{1}{2}$ -mile intervals in the permit areas and $\frac{1}{8}$ -mile intervals on the claim groups. Eighteen conductive zones and 47 isolated anomalies were detected. Reconnaissance and detailed geological mapping and ground magnetic and electromagnetic surveys were performed. Twelve holes, totalling 894 feet, were drilled on the HAR and HEB claim groups. A resistivity survey, using the Melos technique, was performed on the HAR claims by a crew from Tech-NO of Paris, France. The Melos technique involves the measurement of rock resistivity, using several electromagnetic frequencies and produces a three-dimensional resistivity portrayal. The 1972 program involved reconnaissance geology and detailed geological and geophysical investigation of the claim groups.

Sulphide concentrations are common throughout the belt but wherever observed outside of the HAR and HEB claims, they consist exclusively of barren pyrite-pyrrhotite facies iron-formation within sedimentary rocks. Magnetic iron-formation is often spatially related to the sulphides which may occur as thin layers within finely-layered quartz-amphibole rock and which usually show evidence of remobilization resulting in fine veining or disrupted layering. The highest concentrations of base-metals detected outside of the HAR and HEB claims were in thin discontinuous bands of sulphide iron-formation in quartzitic sediments on the DAS claims. A sample from one of these bands contained 0.06 per cent copper, 0.01 per cent lead, 0.01 per cent zinc, 0.13 per cent nickel and 0.02 per cent cobalt.

On the HAR claims (66°18'15"N, 92°33'W), a sulphide zone, 6,500 feet long and up to 65 feet thick, occurs in a sedimentary series of greywacke and quartzose rocks that enclose one magnetite and one magnetite-specularite iron-formation band. The series is intruded by amphibolite possibly related to a large anorthosite intrusion to the southeast. Eight holes, totalling 577 feet, probed the sulphide zone which consists mainly of thin pyrrhotite laminae along the bedding planes with some sections of massive pyrrhotite up to 7 feet thick. Chalcopyrite occurs in the sulphide zone near the amphibolite intrusion as tiny crosscutting veinlets. The maximum metal concentrations encountered assayed 0.72 per cent copper and 0.05 per cent nickel over two feet in quartz-sericite schist and 0.20 per cent nickel and 0.14 per cent copper over two feet in magnetite iron-formation.

The HEB claims (66°42'40"N, 91°42'W) showing consists of a 16-foot wide and 163-foot long zone of irregular pockets of massive pyrrhotite and minor chalcopyrite, enclosed in an ultramafic intrusion some 6,500 feet long. Four drill holes, totalling 317 feet, probed the zone. The best assay was 1.45 per cent copper and 0.04 per cent nickel over two feet.

GAVIN RIVER CLAIMS
Gavin River Syndicate
c/o Adera Mining Limited
600, 789 West Pender Street,
Vancouver, B.C.

Copper, Nickel, Gold
66 N/5
(67°22'N, 101°38'W)

Reference:

Heywood (1961)

Property:

248 GRS and 252 NI claims

66 N/5

Location:

The claims are centred 25 miles south-southwest of Ogden Bay and eight miles east of the Perry River. They were staked to cover the area east and south of the Perry River claims (which see).

History:

The GRS and NI claims were acquired by the syndicate in early April 1972.

Description:

Plagioclase-hornblende-biotite schist and gneiss, amphibolite, lime silicate gneiss, garnetiferous schist and gneiss and minor mixed gneiss and granite (unit 2, Heywood, 1961) underlie the northern half of the claim group. The southern claims are underlain by mixed gneiss, granitic gneiss and some schist (unit 5, op. cit.).

Current Work and Results:

A team of four prospectors investigated the claims in 1972 and discovered ten nickel and copper occurrences. Most of the showings are low-grade and limited in size but they are in the vicinity of major structural trends and discontinuities. A description of each showing is given in the following table:

Showing	Location	Description	Metal content of samples		
			Cu (%)	Ni (%)	Au oz/ton
D.1	claim NI 86 (67°16'20"N, 101°36'20"W)	a rusty band of dark quartz-pyroxene granulite or gneiss 15 feet long and 2 feet wide	0.26	0.41	
D.2	claim NI 50 (67°17'40"N, 101°36'W)	a 2-foot wide and 100-foot long boulder train trending north concordant with the nearby gneisses	0.07	0.01	
D.3	claim NI 36 (67°16'45"N, 101°38'45"W)	quartz-diorite with disseminated pyrrhotite, pyrite, magnetite and chalcopyrite	0.13	0.14	
D.4	claim NI 166 (67°16'10"N, 101°39'W)	5-foot wide and 50-foot long gossan in pyroxenite	0.06	0.06	0.005
D.5	claim NI 118 (67°18'N, 101°39'45"W)	frost-heaved amphibolite boulders with disseminated pyrrhotite	0.11	0.74	0.005

Showing	Location	Description	Metal content of samples		
			Cu (%)	Ni (%)	Au oz/ton
D.6	claim NI 137 (67°18'10"N, 101°37'W)	sporadic gossan & boulder train of amphibolite	0.02	0.02	
D.7	claim NI 1 (67°10'45"N, 101°37'15"W)	pyrrhotite over 200-foot length in fine-grained garnet gneiss	0.04	0.02	0.005
D.8	claim NI 118 (67°17'50"N, 101°40'W)	pyrrhotite and chalcopyrite in small granulite outcrops	0.04	0.02	
D.9	claim NI 186 (68°18'20"N, 101°41'20"W)	frost-heaved boul- ders of quartz dio- rite with dissemin- ated pyrrhotite, pyrite, magnetite & chalcopyrite	0.20	0.06	0.005
D.10	claims NI 235 246 and 247 (67°15'45"N, 101°40'30"W)	2- to 10-foot wide and 3,000-foot long north-trend- ing zone of pyr- rhotite, pyrite, chalcopyrite and magnetite in mixed gneisses	0.39 (south end) 0.96 (centre) 0.18 (north end)	0.55 0.38 0.11	0.02 0.01 0.01

PERRY RIVER CLAIMS

Savanna Creek Gas & Oil Limited (75%)
5, 932 - 12th Avenue Southwest,
Calgary, Alberta.

Copper, Nickel
66 N/5
(67°25'N, 101°46'W)

Rio Alto Explorations Limited (25%)
920, Three Calgary Place,
355 - 4th Avenue Southwest,
Calgary, Alberta.

Reference:

Heywood (1961)

Property:

36 EIRA, 72 GAVIN, 72 INUK, 36 LIK,
36 MAG, 36 MOK, 12 N, 36 NEB.,
36 NW, 36 OAT, 36 OS, 35 OTOK,
36 PRS, 72 ROSS, 72 SE, 36 TAFF,
36 TAM, 36 W

66 N/5

Location:

The claims are centred 11 miles south of Discovery Lake and cover the west bank of the Gavin River.

History:

The OTOK claims were staked in July 1971 to cover a showing discovered by a prospecting party working for the Perry River Syndicate (Savanna Creek Gas and Oil Limited and Rio Alto Explorations Limited). The remaining claims were added to the property in November 1971.

Savanna Creek Gas and Oil Limited ceded its interest in the OTOK claims to the Perry River Nickel Mines Ltd. in March, 1972. In August of that year, 95 of the MAG, N, OAT, OS and ROSS claims north of the OTOK claims were acquired by Nemco Explorations Limited.

Description:

The claim group is underlain by mixed gneiss and schist (units 2 and 5, Heywood, 1961), including plagioclase-hornblende and -biotite schist and gneiss, amphibolite, lime silicate gneiss and garnetiferous schist and gneiss. A number of small gabbro and diorite dyke-like intrusions were outlined during

prospecting in 1971 as were concentrations of magnetite, chalcopyrite, pyrite and pyrrhotite in amphibole-quartz-biotite bands in gneiss.

Current Work and Results:

A prospecting campaign in 1971 resulted in the discovery of three copper-nickel showings one of which, the OTOK showing (67°24'30"N, 101°46'30"W), was trenched and mapped. A photogeological study of the area and a geological report, based on published material and a thin-section study of rocks from the OTOK showing, were also prepared. In 1972, exploration involved detailed geophysical surveys using magnetic, electromagnetic and induced polarization systems, prospecting, trenching and the diamond drilling of two holes, totalling 484 feet, on the OTOK showing.

The OTOK showing has been traced over 2,000 feet by means of the geophysical surveys. It appears to lie in a Z-shaped drag fold in banded gneiss enclosing granulite, pegmatite and pyroxenite bands and unaltered basic intrusions. Pyrrhotite, pyrite, chalcopyrite and minor magnetite occur mainly in the pyroxenite and granulite bands and the basic intrusions. Two holes were drilled in the area of best geophysical response. Intersections assayed up to 0.39 per cent copper and 0.13 per cent nickel over 30 feet and 0.65 per cent copper and 0.18 per cent nickel over 29 feet. The bands of pyroxenite are consistently mineralized and contain 0.2 to 0.3 per cent copper and 0.08 per cent nickel. The granulite and gneiss sporadically consists of 75 per cent sulphides and contain up to 2.2 per cent copper and 0.42 per cent nickel. Chalcopyrite is the main sulphide in the basic intrusions, where it occurs as stringers and small masses along fracture planes. Samples of the latter rock contain up to 1.88 per cent copper and 0.05 per cent nickel.

The OAT-LIK showing (67°23'10"N, 101°46'15"W) consists of several narrow amphibole-biotite bands with 5 to 10 per cent pyrite, pyrrhotite and chalcopyrite. Samples of this material contain up to 0.78 per cent copper and 0.31 per cent nickel. Several barren gabbro bodies occur in the vicinity.

The EIRA showing (67°22'45"N, 101°44'45"W) occurs in gabbro, near a pyroxenite band in gneiss. A sample from this minor showing contained 2.06 per cent copper and 0.06 per cent nickel.

TURNER-CHANTREY PROSPECTING SYNDICATE
Mr. D.C. Turner
c/o Gjoa Haven P.O.

Copper, Zinc, Molybdenum
57 B/2,3
(68°03'N, 94°00'W)

Reference:

Heywood (1961)

Property:

34 NIG claims

57 B/2

36 MIC claims

57 B/3

Location:

The NIG claims (68°02'45"N, 93°11'W) are centered 15 miles west-southwest of the southwestern shore of Murchison Lake. The MIC claims (68°03'45"N, 95°08'W) cover the east shore of a small bay, west of Arrowsmith Bay and east of Cape Britannia, on the south shore of the Rasmussen Basin.

History:

D.C. Turner has been active in the Chantrey Inlet area for a few years. The NIG and MIC claims were staked in July 1971 to cover two showings discovered during the 1970 season. The Turner-Chantrey Prospecting Syndicate has been dissolved.

Description:

The area prospected by D.C. Turner is underlain by granitic intrusions and gneissic granite (unit 6, Heywood, 1961) enclosing narrow northeast-trending bands of greenstone, greenschist, hornblende schist, amphibolite, biotite schist and gneiss (unit 1, op. cit.) that are cut by small ultrabasic plugs (unit 7, op. cit.).

The copper-molybdenum showing on the MIC claims consists of a pyritic schist band in granitic rocks. Molybdenite, chalcopyrite, pyrite and pyrrhotite occur in two areas three to four miles apart. Pyrite, pyrrhotite and chalcopyrite occur in some pegmatite veins near the shore of the bay.

Pyrite, pyrrhotite, sphalerite and chalcopyrite occur on the NIG claims at the contact of an ultrabasic plug with the enclosing metamorphosed volcanics. Samples of the sulphide concentrations contained zinc, copper, nickel, silver and some cobalt.

Current Work and Results:

Poor weather conditions hampered prospecting in 1971 but an area trending northeast for 25 miles from the NIG group was prospected. No showings were detected in this area.

Prospecting in the NIG claims area outlined three other outcrops of metavolcanics mineralized with pyrite and pyrrhotite. In the MIC claims area some mapping and dip-needle surveying was undertaken but no new showings were discovered.

MELVILLE PENINSULA

MELVILLE PENINSULA PROJECT
Aquitaine Company of Canada Limited
2000, 540 - 5th Avenue Southwest,
Calgary, Alberta.

Zinc, Copper, Nickel
46 K,N,O,P; 47 A
(67°22'N, 82°45'W)

References:

Heywood (1967); Laporte (1974)

Property:

Prospecting permit 177	46 K/13
Prospecting permit 178	46 K/15
Prospecting permit 179	46 K/16
Prospecting permit 180	46 N/1
Prospecting permit 181	46 N/2
Prospecting permit 182	46 N/3
Prospecting permit 183	46 N/8
Prospecting permit 184	46 O/2
Prospecting permit 185	46 O/3
Prospecting permit 186	46 O/4
Prospecting permit 187	46 O/5
Prospecting permit 188	46 O/6
Prospecting permit 189	46 O/7
Prospecting permit 190	46 O/8
Prospecting permit 191	46 O/9
Prospecting permit 192	46 O/10
Prospecting permit 193	46 O/11
Prospecting permit 194	46 O/12
Prospecting permit 195	46 O/14
Prospecting permit 196	46 P/5
Prospecting permit 197	46 P/6
Prospecting permit 198	46 P/11
Prospecting permit 199	46 P/12
21 DUC claims	46 O/6
20 BAR claims	46 O/7
11 LEP claims	46 O/9
12 BIL claims	47 A/13
11 WAY claims	47 A/14

Location:

The DUC, BAR and LEP claims were staked within areas held under prospecting permits (Laporte, 1974). The BIL and WAY claims were staked to the northeast, 25 miles northwest and 28 miles north-northwest of Kite Island on Hall Lake.

History:

Prospecting permits 178, 179, 182 and 194 to 198 were relinquished in April 1971; prospecting permits 180, 181, 183, 185, 187, 190 and 192 in April 1972. The remainder lapsed in April 1973. The BIL and WAY claims were acquired in August 1971 and the BAR, DUC and LEP claims in September, 1972.

Description:

A sequence of deformed Penrhyn Group metasediments underlies the triangular area extending from the east coast of Melville Peninsula, between Cape Wilson and Cape Germain, to its apex near the centre of Rae Isthmus. The Penrhyn Group crystalline limestone (unit 13, Heywood, 1967), pure and impure quartzite (unit 14, op. cit.), meta-argillite, metagreywacke and derived schists and gneisses (unit 15, op. cit.) are preserved in a northeasterly-plunging synclinorium. The fine- to coarse-grained limestone varies from thinly-laminated to thick-bedded to massive and exhibits tight isoclinal folds with boudinaged quartzite beds, pegmatite dykes and flow lines around broken dykes and sills. The quartzite is fine- to medium-grained and in beds commonly less than one foot but up to 50 feet thick.

In the central part of the synclinorium, the rocks have been deformed into a series of dome-like structures consisting of oval to elongate cores of plutonic rock ranging in composition from granite to granodiorite, surrounded by paragneiss, quartzite and crystalline limestone of the Penrhyn Group, and migmatite (unit 11, op. cit.). Small bodies of massive granite and granodiorite (unit 12, op. cit.) and veins and sills of pegmatite intrude the domes. The metasedimentary layering sweeps around the noses of the domes, synformal between and antiformal over the plutons. The foliation in the plutons is, in most cases, conformable with the bedding and gneissic structure in the metasediments.

Current Work and Results:

In 1971, an electromagnetic and magnetic survey, totalling 1,565 line-miles, was flown along lines at $\frac{1}{4}$ -mile intervals, in thirty areas retained after 1970. A geological crew examined 16 of the areas and performed reconnaissance geological mapping, geochemical sampling of gossan zones and rusty soil patches and, in four areas, reconnaissance electromagnetic and magnetic surveys. Detailed work included geological mapping, electromagnetic and magnetic surveys, resis-

tivity surveys using the Melos technique, diamond drilling of eight holes totalling 698 feet and trenching of the DUC zone outlined in 1970.

In 1972, six of the areas not investigated the previous year were subjected to reconnaissance geological and geochemical surveys. Detailed geological mapping, geochemical soil sampling, electromagnetic and magnetic surveying and trenching were performed in three areas where geochemical anomalies had been outlined in 1971.

Most of the gossan zones investigated in 1971 and 1972 are related to schist bands containing graphite and disseminated barren pyrrhotite or pockets of pyrite and pyrrhotite in quartz and pegmatite veins. Three zones of interest were staked.

The DUC claims ($67^{\circ}29'40''\text{N}$, $83^{\circ}08'30''\text{W}$) cover the southern limb of a near vertical east-trending anticline in metasedimentary beds in contact to the south with granitic gneiss and pegmatite. Gossans cover a 1650-foot band of pelitic graphitic schist, greywacke, very fine-grained paragneiss, slate and biotite-graphite schist with interbedded quartzite beds. Pyrrhotite, sphalerite and minor pyrite and chalcopyrite are disseminated in graphitic schist, slate and biotite paragneiss. The best drill intersections were 0.33 per cent copper, 0.46 per cent nickel and 0.12 per cent molybdenum over two feet and 5.75 per cent zinc over six feet. The high zinc values were obtained from a hole put down to intersect a 20-foot wide and 300-foot long mineralized zone. Zinc concentrations of two per cent over five feet were intersected in two holes probing a similar zone 1,800 feet to the east.

A geochemical soil sample containing 0.38 per cent zinc, 0.26 per cent molybdenum, and 1.07 per cent lead was collected in 1971 from the area now covered by the BAR claims ($67^{\circ}24'30''\text{N}$, $82^{\circ}35'\text{W}$). Only poor electromagnetic anomalies were detected in 1972 but anomalous concentrations of metals in soil samples were outlined in the eastern part of the grid. Grab samples from a trench in the central part of the grid assayed 20.4 and 12.7 per cent zinc (in boulders).

The LEP claims ($67^{\circ}33'\text{N}$, $82^{\circ}10'\text{W}$) cover a flat-lying anticline composed of sandy limestone, dark grey quartzite and very fine-grained graphitic schist and quartzite. The geochemical survey detected concentrations of nickel, zinc and copper in the periclinal closure to the east. Samples from trenches dug in this area assayed 0.1 per cent copper, 0.14 per cent nickel and 0.28 per cent zinc. The geophysical survey did not outline any conductors.

The area staked as the BIL claims (68°53'N, 83°03'W) is underlain by a 1,800-foot long and 900-foot wide north-northeast trending amphibolite mass in gneiss. Concentrations of nickeliferous pyrrhotite, pyrite and chalcopyrite were outlined at the contact between the amphibolite and the gneiss. The 1972 geophysical survey outlined four anomalies corresponding to mineralized sections of the amphibolite mass.

BAFFIN ISLAND

CUMBERLAND PENINSULA PROJECT	Copper, Zinc
Aquitaine Company of Canada Limited	16 D,E; 26 H
2000, 540 - 5th Avenue Southwest,	(65°22'N, 63°30'W)
Calgary, Alberta.	

References:

Jackson (1971); Jackson and Taylor (1972)

Property:

Prospecting permit 235	16 D/13
Prospecting permit 236	16 D/14
Prospecting permit 237	16 E/3
Prospecting permit 238	16 E/4
Prospecting permit 239	16 E/5
Prospecting permit 240	16 E/6
Prospecting permit 241	16 E/9
Prospecting permit 242	16 E/11
Prospecting permit 243	16 E/15
Prospecting permit 244	16 E/16
Prospecting permit 245	26 H/1
Prospecting permit 246	26 H/2
Prospecting permit 247	26 H/6
Prospecting permit 248	26 H/7
Prospecting permit 249	26 H/8
Prospecting permit 250	26 H/9
Prospecting permit 251	26 H/10
Prospecting permit 252	26 H/11

Location:

The prospecting permits cover the area on eastern Baffin Island from Hoare Bay north to Clephane Bay and west to Cumberland Sound.

History:

Of the 18 prospecting permits acquired in 1971, only three were retained after the first year and these were relinquished in 1973.

Description:

Most of the southern half of Cumberland Peninsula is underlain by a thick succession of intensely deformed, layered metasedimentary rocks and intermediate-to-basic metavolcanic

rocks referred to as the Hoare Bay Group (Jackson, 1971). The main rock types in the area are mica-hornblende-feldspar-quartz schist and gneiss, amphibolite, and biotite-hornblende schist and gneiss. The metavolcanic rocks have pillows and pyroclastic textures preserved locally and enclose serpentinitized ultrabasic intrusions. Small amounts of oxide and oxide-silicate iron-formation, quartzite and metachert are also present. Rusty pyrite-pyrrhotite-bearing zones are associated with the metavolcanics. Some chalcopyrite is present in both the basic igneous rocks and the associated sediments. Bands of migmatite and granitic gneiss, up to 15 miles wide and in part derived from the Hoare Bay Group rocks, trend east and southwest across Cumberland Peninsula.

Current Work and Results:

A 4,239 line-mile electromagnetic and magnetic survey flown over the permit areas in 1971 outlined 93 anomalous zones and numerous single line anomalies. Geological crews from Aquitaine investigated most of these anomalies in 1971. Homogeneous disseminated to massive bands of pyrrhotite and pyrite were found within alternating bands of graphitic schists, garnet amphibolite, impure quartzite and paragneiss. Sparse chalcopyrite and sphalerite mineralization is frequently associated with the iron sulphides. Values of copper and zinc rarely exceed 0.1%.

CENTRAL BAFFIN ISLAND PROJECT	Copper, Zinc
Aquitaine Company of Canada Limited	27 B/12; 37 A/8,10,
2000, 540 - 5th Avenue Southwest,	C/9,10
Calgary, Alberta.	

References:

Jackson (1969, 1971); Jackson and Taylor (1972)

Property:

22 ELF, 18 ELI and 17 ELK claims	27 B/12
4 ZUT claims	37 A/8
31 FRA and 9 MAR claims	37 A/10
7 CAK claims	37 C/9,10

Location:

The ELF, ELI and ELK claim groups are on the north shores of two lakes, 10 miles southwest of the Dewar Lakes

DEW-Line station. The ZUT claims are on the west shore of a long narrow south-trending lake, 27 miles southwest of Dewar Lakes. The FRA and MAR claims were staked on the west shore of a wide southwest-flowing river emptying into Clarke Sound. The CAK claims cover part of the peninsula, between Grant Suttie Bay and Ege Bay.

History:

All the claim groups were staked to cover gossan zones discovered during a prospecting campaign in the summer of 1971.

Description:

The claim groups were staked in areas of undifferentiated, metamorphosed basic volcanic rocks, greywacke, ultra-basic rocks, iron-formation and graphitic micaceous schist and quartzite (Jackson and Taylor, 1972). A rusty graphitic quartz-rich gneiss, containing disseminated pyrite, pyrrhotite and minor chalcopyrite which grades along strike into quartz-magnetite iron-formation, is a persistent horizon in this group of rocks.

Current Work and Results:

The claims were staked during a prospecting campaign covering a large part of western Baffin Island. Rusty soil and gossan zones were sampled but the geochemical analyses of these samples did not outline any economic concentrations of minerals. Disseminated to massive pyrrhotite and pyrite were found frequently at the contact between extensive amphibolite layers and paragneiss. Although many specs of chalcopyrite were observed, zinc and copper values rarely exceeded 0.2 to 0.3 per cent on selected samples.

STRATHCONA SOUND DEPOSIT	Zinc, Lead, Silver
Kuhulu Creek Mining Corporation Limited	48 C/l
Under option to:	(73°02'N, 84°14'W)
Mineral Resources International Limited	
100, One Calgary Place,	
330 - 5th Avenue Southwest,	
Calgary, Alberta.	

References:

Blackadar (1956); Blackadar et al. (1968); Laporte (1974);
Lemon and Blackadar (1963)

Property:

Mineral Lease Nos. 2451, 2274, 2275,
2281, 2452, 2453
7 RAVEN, 7 OWL, 2 GOOSE, 6 DUCK, 12 FISH,
22 LION, 35 GULL claims

Location:

The property includes an area of approximately 20 square miles on the south shore of Strathcona Sound, west of Kuhulu Lake.

History:

Lead and zinc sulphides on the south shore of Strathcona Sound were first noted by A. English, a prospector who accompanied Captain J.E. Bernier on his expedition to northern Baffin Island in 1910-11. The showings were trenched by J.F. Tibbitt and J.W. McInnes in 1937 and two claims were staked. These lapsed in 1938. Texas Gulf Inc. became interested in the area after the publication of a preliminary Geological Survey of Canada report (Blackadar, 1956) in which the massive pyrite showings were mentioned. Thirty-seven claims were staked by the company in 1957 to cover the showings. In 1958, detailed geological and geophysical surveys and trenching were performed and additional claims staked. Diamond drilling was undertaken in 1961 and by late 1968, 90,000 feet had been drilled. In 1969 Texas Gulf drove an adit and four cross-cuts into the east end of the main orebody completing some 2,000 feet of underground development. A 50-ton bulk sample was shipped out for metallurgical testing.

Description:

Grey dolomite of the Society Cliffs Formation (unit Hsc, Blackadar et al., 1968) underlies most of the property. The overlying shale with minor limestone, mudstone and conglomerate of the Victory Bay Formation (unit Hvb, op. cit.) underlies a restricted area in the northwestern part of the property. Quartzose sandstone, and minor siltstone, conglomerate and shale of the Gallery Formation (unit EOga, op. cit.) underlie the southwestern corner of the property.

The flat-lying orebody is 200 to 400 feet wide, 30 to 60 feet thick and two miles long. The S-shaped body is nearly massive pyrite with varying amounts of sphalerite, galena and minor marcasite, and about five per cent disseminated calcite. Selenite and recrystallized dolomite occur in fractures and as breccia matrix in or near the orebody which occurs in Society Cliff dolomite. Several mineralized pipes or veins extend down below the main orebody.

Current Work and Results:

In 1972 Mineral Resources International Limited completed an additional 10,000 feet of drilling on the main orebody and mined an additional 10-ton bulk sample from the west end. The GULL claims were added to the main group of claims in November, 1972.

A production feasibility study was undertaken by Watts, Griffis and McOuat Limited in 1972 and completed in September of 1973. The study shows that some 6,970,000 tons of proven and probably ore, grading 14.1 per cent zinc, 1.4 per cent lead and 1.8 ounces silver per ton, exist in the main orebody and that additional ore may be found under it. On the basis of detailed analysis of all factors, the study concludes that development of the main orebody is economically feasible and recommends that it be brought into production.

ARCTIC ISLANDS

CORNWALLIS ISLAND PROJECT
Cominco Limited,
200 Granville Square,
Vancouver, B.C.

Zinc, Lead
58 F/14, G/15

References:

Laporte (1974); Thorsteinsson and Kerr (1968)

Property:

18 MUSKOX claims and prospecting permit 256	58 F/14
Prospecting permit 255	58 G/5

Location:

Prospecting permit 256, centred 15 miles northeast of Resolute, extends from the head of the Taylor River south to the Mecham River and east to Snowblind Creek. Prospecting permit 255 extends east from Pullen Strait and the head of Midshipman Bay to the head of Rookery Creek.

History:

The two prospecting permits were acquired in 1971 to cover two zones of lead-zinc showings discovered in 1966 during a reconnaissance geochemical survey (Laporte, 1974).

Description:

Cornwallis and Little Cornwallis Islands are underlain by more than 22,000 feet of marine carbonates and clastics, evaporites, red-beds and non-marine clastics representing five concordant rock successions separated by regional unconformities. The oldest beds were deposited in the Franklinian Miogeosyncline with subsequent units being deposited as thin, stable platform sediments now preserved in grabens, synclinal troughs and along the downfaulted sides of normal faults. The main tectonic feature within the area is the Cornwallis Fold Belt, a northwesterly-trending extension of the Boothia Uplift.

The prime exploration target within the sequence of rocks outcropping on Cornwallis Island is the 1,700 feet of limestone and dolomite of the Thumb Mountain Formation (unit Oct, Thorsteinsson and Kerr, 1968). This unit is underlain

by the Bay Fiord Formation (unit Ocb, op. cit.), 1,000 feet of gypsum, anhydrite, limestone and minor shale, and overlain by the Irene Bay Formation (unit Oci, op. cit.), 30 to 150 feet of shale and limestone. All three formations are members of the Cornwallis Group which is underlain by limestone and minor dolomite of the Eleanor River Formation (unit Oe, op. cit.), and overlain by the Allen Bay Formation dolomite, minor limestone and shale (unit OSa, op. cit.). North of a facies change line trending northeasterly across the centre of the island, the chronological and stratigraphical equivalent of the Allen Bay Formation, the Cape Phillips Formation shale, limestone, cherty limestone, chert and dolomitic limestone (unit O-Dcp, op. cit.) overlies the Cornwallis Group.

Cornwallis Group units outcrop along two main arcuate belts on the eastern and western flanks of the Centre Anticline and the Lady Hamilton Syncline to the north. Outcrops within the southern part of the belt are bounded by a complex system of northeast- to northwest-trending faults which resulted in the formation of features such as the Sheringham and Taylor River grabens.

The WALRUS claims in the northern part of Cornwallis Island are underlain mainly by Thumb Mountain Formation limestone and dolomite. In the northern part of the group, these rocks are partly overlain by dolomite and minor conglomerate of the Middle Devonian Disappointment Bay Formation (unit Dd, op. cit.) and are in fault contact with the Cape Phillips Formation. The southeast corner of the claims is underlain by Irene Bay Formation shale and limestone and units of the Cape Phillips Formation. The MUSKOX claims are also underlain by Thumb Mountain Formation units in fault-contact to the south with Allen Bay Formation dolomite, minor limestone and shale and overlain to the west by Irene Bay Formation and Allen Bay Formation units.

Zinc and lead sulphides occur within dolomite of the Thumb Mountain Formation as color-banded sphalerite aggregates in the interstices of breccia fragments and as fracture fillings and disseminations in a gangue of white calcite and dolomite. The MUSKOX and Allen River showings consist of fracture fillings and disseminations along the contact of a slightly brecciated dolomite with limestone.

Current Work and Results:

In 1971, the showing between Bacon and Allen Rivers (Laporte, 1974) was mapped in detail and some geochemical surveys were done. Fourteen short diamond drill holes, totalling

339 feet, were drilled on geochemical anomalies. Detailed surface mapping of the Rookery Creek showing (Laporte, 1974), and geochemical reconnaissance surveying and prospecting were performed on the northern prospecting permit. In 1972, exploration involved detailed and reconnaissance geological mapping and limited geophysics in the Rookery Creek area and on Pullen Peninsula.

The Allen Branch showing (74°53'N, 94°24'W) consists of two areas of leached rubble.

Disseminated sphalerite, galena and marcasite occur in weakly dolomitized limestone within a prominent graben.

Two showings have been outlined in the Rookery Creek area; the South Showing (75°20'N, 94°34'15"W) consists of trace amounts of brown sphalerite in dolomite and the North Showing (75°24'30"N, 95°41'30"W) consists of a small galena-sphalerite occurrence. Detailed mapping in the South Showing area outlined a north-northwest-trending graben structure with the western associated horst consisting of Thumb Mountain Formation units overlain by Irene Bay Formation shales.

PROSPECTING PERMIT 220
Bayou Petroleums Limited
a subsidiary of
Canada Northwest Land Limited
970, Three Calgary Place,
355 - 4th Avenue Southwest,
Calgary, Alberta.

Lead, Zinc, Silver, Copper
58 G/6
(75°22'N, 94°30'W)

References:

Laporte (1974); Thorsteinsson and Kerr (1968)

Property:

Prospecting permit 220

58 G/6

Location:

The prospecting permit area covers that part of north-eastern Cornwallis Island extending west for 17.5 miles from the southern point of Eleanor Lake and south for 17 miles from Abandon Bay.

History:

Prospecting permit 220, acquired by Bayou Petroleum Limited in early 1970, covers ground previously held as prospecting permit 53 by Cominco Limited in 1966 and early 1967. Geological and geochemical reconnaissance of the area were performed by the latter company in conjunction with work on claims on Little Cornwallis Island and in the Taylor River and Stuart River areas of Cornwallis Island. Prospecting permit 220 lapsed in April 1973.

Description:

Lower and Middle Ordovician to Upper Devonian rocks outcrop within the permit area. Limestone and minor dolomite (unit Oe, Thorsteinsson and Kerr, 1968) of the Eleanor River Formation are exposed in the north-central part of the permit area, in the core of the Caribou Anticline and at the southwestern border of the area in the Centre Anticline.

The Middle Ordovician Cornwallis Group, which conformably overlies the Eleanor River Formation, consists of: gypsum, anhydrite and limestone with minor dolomite of the Bay Fiord Formation (unit Ocb, op. cit.), the limestone and dolomite of the Thumb Mountain Formation (unit Oct, op. cit.), and the shale and limestone of the Irene Bay Formation (unit Oci, op. cit.). These units outcrop in a four- to eight-mile wide arcuate belt, extending from the southwestern corner of the permit area to the north-central region, which includes the northern flanks of the Central Anticline, the north-trending De Haven Anticline, the northwest-trending Caribou Anticline and less extensive unnamed anticlines to the east. These Middle Ordovician units are also exposed in the Musk Ox Anticline, in the northwest corner of the permit area.

Shale, limestone, cherty limestone, chert and dolomitic limestone of the Late Ordovician to Early Devonian Cape Phillips Formation (unit O-Dcp, op. cit.) rests with sharp, yet conformable, contact on the Cornwallis Group units. The Cape Phillips Formation rocks outcrop extensively along the eastern and western borders of the permit area.

An equivalent of the Upper Cape Phillips Formation, the Read Bay Formation, is overlain by the Snowblind Bay Formation limestone and dolomite conglomerate, dolomite, limestone, siltstone and sandstone (unit Dsn1, op. cit.), which outcrop in a restricted wedge-shaped fault-bounded area in the east-central part of the region. A lithologically similar limestone and dolomite conglomerate unit (unit Dsn2, op. cit.) outcrops over a small area to the south-southeast.

On most of the permit area, the Cape Phillips Formation is overlain unconformably by the Disappointment Bay Formation dolomite and minor conglomerate (unit Dd, op. cit.), which outcrop in the western part of the area, along the flanks of the Lady Hamilton Syncline and along the north-eastern flank of the Musk Ox Anticline to the north. Disappointment Bay Formation units also underlie an eight-mile by four-mile area west of Eleanor Lake and outcrop within the Eleanor Graben, to the south.

The Blue Fiord Formation limestone (unit Dbl, op. cit.), of Middle Devonian age, was mapped along the west flank of the Lady Hamilton Syncline, within an unnamed syncline, northeast of the Caribou Anticline and in the area of the Eleanor Graben. Limestone, sandstone and siltstone of the overlying Bird Fiord Formation (unit Dbi, op. cit.) outcrop locally along the axis of folds in the Blue Fiord Formation units.

The youngest formation in the permit area: sandstone, with minor siltstone and shale of the Late Devonian Griper Bay Formation (unit Dmg, op. cit.) is exposed east and north of the Eleanor Graben and possibly within the Lady Hamilton Syncline.

Two main structural zones can be distinguished in the permit area. A western zone comprises a number of north- to northwest-trending folds, and a zone to the east and south consists of a four-mile wide arcuate belt of north to north-east-trending faults. The major structure in the western part of the permit area, the northwest-trending Lady Hamilton Syncline, is flanked to the north and northeast by the northwest-trending Musk Ox and Caribou anticlines and to the east and southeast by the north-trending De Haven Anticline. South of the syncline, the Cornwallis Group units are disrupted by a series of north and east-northeast-trending normal faults. East of the De Haven Anticline, the Eleanor Graben was formed by north-trending faulting.

Current Work and Results:

In 1972, twelve and a half line-miles of gravity profiling performed in the area west and southwest of Eleanor Lake did not outline any sharp, high-amplitude positive anomalies indicative of large concentrations of heavy minerals.

PROSPECTING PERMITS 285 and 286
Bow Valley Industries Limited
630 - 6th Avenue Southwest,
Calgary, Alberta.

58 G/13; 68 H/16
(75°52'N, 96°00'W)

Property:

Prospecting permit 285	58 G/13
Prospecting permit 286	68 H/16

Location:

The prospecting permits cover most of Crozier Island and all of Baring Island.

History:

Acquired in April 1972 by Bow Valley Industries Limited, the prospecting permits were relinquished in 1973.

Description:

The northern third of Crozier Island is underlain by well-bedded, nearly flat lying medium- to coarse-grained quartz sandstone. The central third of the island and the western two thirds of Baring Island consist of flat-lying calcareous shale and argillaceous limestone grading upward into calcareous sandstone. The southern third of Crozier Island and the eastern third of Baring are underlain by fine-grained crystalline non-porous limestone.

Current Work and Results:

The two islands were prospected, geochemically silt sampled and mapped on a reconnaissance scale. The silt samples were analyzed in the field for total heavy metals and in a commercial laboratory for total zinc and lead as well as cold extractable zinc. Only one sample on the southwestern shore of Baring Island contained an anomalous concentration of metals but a sample 200 feet upstream contained only background values. No concentrations of sulphides were detected during prospecting.

LITTLE CORNWALLIS ISLAND PROJECT
Cominco Limited (75%)
200 Granville Square,
Vancouver, B.C.

Lead, Zinc
68 H/2,7,8,9,10
(75°30'N, 96°40'W)

Bankeno Mines Limited (25%)
908, 40 University Avenue,
Toronto, Ontario.

References:

Kerr (1972); Laporte (1974); Thorsteinsson and Kerr (1968)

Property:

179 VENUS claims	68 H/2,7
18 SAK and 50 TRU claims	68 H/7
119 RID claims	68 H/7,8
19 SUP claims	68 H/7,10
Prospecting permit 253	68 H/8
Prospecting permit 254	68 H/9

Location:

The two prospecting permits cover the Marshall Peninsula on Cornwallis Island, most of Little Cornwallis Island, all of Milne Island and the southern shore of Crozier Island. The claim groups cover several areas which include two islands west of Royle Point (SUP claims), the west shore and tip of Brooman Point (SAK claims), Truro Island and the sea-bed to the north (VENUS and TRU claims) and the sea-bed along the west shore of Little Cornwallis Island and west of the Arvik Mines Limited holdings (which see) (RID claims).

History:

Prospecting permits 253 and 254 were acquired by Cominco Limited in April 1971, the SAK, SUP and VENUS claims in October 1971 and the RID and TRU claims in March 1972. The history of exploration on Little Cornwallis Island up to 1970 is described by Laporte (1974).

Description:

Little Cornwallis Island and the eastern shore of Bathurst Island are underlain by three concordant rock successions: Lower Ordovician to Lower Devonian marine carbonates, clastics and evaporites that total some 21,000 feet in thickness and form most of the bedrock in the area; Lower

Devonian red beds and equivalent marine carbonates, and Middle Devonian marine carbonates and clastics. These rocks are complexly folded and faulted along a northwesterly regional strike and their attitudes range from horizontal to overturned. Low dip angles predominate in general broad, open anticlines and relatively flat-bottomed synclines are present. Most of the faults are steeply-dipping normal faults.

The oldest rocks in the area, the Thumb Mountain Formation limestone and dolomite, form the western limb of a syncline underlying the western half of Little Cornwallis Island and the core of an anticline underlying the eastern half of the island. They also outcrop on the eastern part of Truro Island. Thumb Mountain Formation units on both islands are overlain by 50 to 180 feet of Irene Bay Formation shales, which in turn are overlain by 1,000 to 1,500 feet of Late Ordovician to Early Devonian Cape Phillips Formation siltstone, shale, argillaceous limestone and minor dolomite. The eastern part of Brooman Point was mapped as Middle Devonian Disappointment Bay dolomite (Kerr, 1972).

Current Work and Results:

Exploration in 1971 and 1972 involved the detailed geological mapping of parts of eastern and all of western Little Cornwallis Island and geophysical surveys on the eastern part of the island. A limited number of soil samples were collected over ground underlain by favourable lithology.

Reconnaissance work on Truro Island in 1971 outlined a low grade galena-sphalerite showing (75°10'30"N, 97°98'30"W). In 1972, the island was mapped and the showing area was explored by means of geochemical and geophysical surveys and the drilling of 10 short holes totalling 917 feet.

ARVIK PROJECT
Arvik Mines Limited
Trail, B.C.

owned by Cominco Limited (75%)
Bankeno Mines Limited (25%)

Lead, Zinc
68 H/7,8,9,10

References:

Laporte (1974, P. 164); Schiller (1965, P. 58); Thorpe (1966);
Thorsteinsson and Kerr (1968)

Property:

26 VAT claims	68 H/7,8
19 MARY claims	68 H/7,8,10
17 GAR, 21 POLARIS, 10 TAG, 26 TWIM and 4 WEB claims	68 H/8
22 ECLIPSE, 19 TUNDRA and 49 unnamed claims	68 H/9

Location:

The VAT, MARY, GAR, TAG and TWIM claims were staked on the western shore of Little Cornwallis Island to the north and southeast of the POLARIS claims (72°23'15"N, 96°55'30"W) (Laporte, 1974). The WEB claims cover a small island to the south and the ECLIPSE, TUNDRA and unnamed claims cover part of eastern Little Cornwallis Island (Laporte, 1974).

History:

Two lead-zinc showings were discovered on Little Cornwallis Island in 1960 by geologists working for Bankeno Mines Limited during an oil exploration program. The western showing was staked as the POLARIS group and subjected to a diamond drilling program involving nine holes, totalling 632 feet, that same year. Results of the drilling program (Schiller, 1965) were discouraging.

Bankeno Mines Limited acquired prospecting permits 19 and 20 in 1961 and undertook preliminary geological mapping and soil sampling programs on the eastern showing. During 1963, the 22 ECLIPSE claims were staked and the showings were channel-sampled. The results of this work were then presented to Cominco Limited and an exploration agreement was arranged.

The 1964 exploration program, involving geological mapping, statistical counts of mineralized rubble and geochemical soil-sampling of the ECLIPSE claims, delimited the areas of mineralized surface material. Pitting within these areas

exposed oxidized galena-sphalerite-marcasite concentrations. Nineteen TUNDRA claims were added to the property at this time.

In 1965, 37 vertical drill holes, totalling 2,311 feet, were drilled and 15.5 line-miles of induced polarization surveys performed within the ECLIPSE claims (Thorpe, 1966). The drilling partially outlined three separate zones of lead-zinc mineralization. Forty-nine unnamed claims were added to the property. In 1966, 1,522 feet of diamond drilling were completed on the ECLIPSE claims and 11 line-miles each of induced polarization and soil geochemical surveys as well as 200 cubic yards of trenching were performed on the POLARIS claims. Geochemical reconnaissance stream sediments surveys were done on the two properties. Part of the diamond drilling on the ECLIPSE claims tested induced polarization anomalies tributary to the main zone and intersected barren, slightly argillaceous limestone.

Description:

Detailed mapping by Cominco Limited in 1971 and 1972 indicated that all of the claims staked in 1971 are underlain by Cape Phillips Formation shale, limestone, cherty limestone, chert and dolomitic limestone, except for the TWIM and TAG claims to the north, west and south of the POLARIS group. These three groups of claims are presumably underlain mainly by Thumb Mountain Formation limestone and dolomite, and the overlying Irene Bay Formation shales. The POLARIS and eastern claim groups are described by Laporte (1974).

Current Work and Results:

The ECLIPSE group of claims were investigated in 1971 and 1972 during the exploration of two prospecting permits held by Cominco Limited (which see) and covering the whole of Little Cornwallis Island.

At the POLARIS property a major diamond drilling program, totalling 34,042 feet in 45 holes, was performed in 1971 and 1972. This was followed in late 1972 by development work involving the establishment of a permanent camp and underground diamond drilling. The drilling outlined a 2,000-foot long, 700-foot wide and 100- to 500-foot thick mineralized body dipping 10 to 15 degrees east in Thumb Mountain Formation carbonates. The ore sections consist of massive and disseminated galena and sphalerite with a lead to zinc ratio of about 1 to 5. Cadmium is present in minor quantities. Silver content averages 0.5 ounces per ton. Published tonnage figures (Northern Miner, April 12, 1973) are 20 million tons of ore with a metal content of about 20 per cent combined lead-zinc.

BATHURST ISLAND AND
GRINNELL PENINSULA PROJECT
Cominco Limited,
200 Granville Square,
Vancouver, B.C.

Zinc, Lead, Copper
59 B; 68 H; 69 A

Reference:

Fortier et al. (1963), Kerr et al. (1973)

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Prospecting permit 276	59 B/6
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29 APOLLO claims	68 H/14
39 HELCA claims	59 B/5
8 TERROR claims	59 B/7
20 EREBUS claims	59 B/11,14
80 BEARD claim	59 B/12
37 AQUARIUS and 4 GRINCH claims	69 A/2
62 AGPAN claims	69 A/2,3
14 IDJUK and 25 USUNG claims	69 A/3
13 ORGAN claims	69 A/7

History:

Eighteen AQUARIUS and 18 APOLLO claims were staked in September of 1971. The eight prospecting permits were acquired in April 1972. The remaining claims were staked during the summer.

Description:

The Grinnell Peninsula is underlain by a thick sequence of Paleozoic sedimentary rocks which have been deformed into a series of north-trending folds with linear grabens bounded by normal and transcurrent faults. Five episodes of deformation, ranging from Devonian to Cenozoic time, affected the sedimentary succession. Prior to the initial deformation, a long and widespread episode of stability was characterized by the deposition of platform carbonates, evaporites and minor shales.

The main exploration targets in the area are the limestone and dolomite of the Thumb Mountain Formation, the middle member of the Middle Ordovician Cornwallis Group. Limestone, shale and anhydrite of the Bay Fiord Formation underlie the Thumb Mountain Formation, which is overlain by Irene Bay Formation limestone and shale.

Current Work and Results:

An eleven-man crew supported by helicopter and fixed-wing aircraft performed reconnaissance geological mapping, stream sediment and soil geochemistry and prospecting on the Grinnell Peninsula and small adjacent islands in 1972.

A geochemical soil survey along seven east-trending lines on the APOLLO claims (75°55'N, 98°10'W) outlined two zinc anomalies over outcrops of Thumb Mountain Formation sparry dolomite and one zinc anomaly over a flat plain adjacent to Cape Phillip Formation rocks. No mineral showings were outlined.

On the AQUARIUS claims (76°03'N, 97°45'W), the geochemical survey outlined a small lead-zinc anomaly over a 50-foot wide by 230-foot long smithsonite showing in Thumb Mountain Formation units. A gravity survey of part of the claim group outlined four anomalies, one of which occurs along strike from the smithsonite showing and coincides with a sparry dolomite concentration in Thumb Mountain Formation units.

Twenty-four soil samples were taken from sparry dolomite rubble in Thumb Mountain Formation on the GRINCH claims (76°97'N, 97°31'W) and six of these show anomalies of interest.

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Mineral Industry Report
1971 and 1972
Volume 3 of 3
Northwest Territories
West of 104° West Longitude
EGS 1975-8

W. A. Padgham
M. W. Kennedy
C. W. Jefferson
D. B. Hughes
J. D. Murphy

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2 MINERAL INDUSTRY REPORT

3 1971 and 1972

Volume 3 of 3

Northwest Territories
West of 104° West Longitude

by

W.A. Padgham, M.W. Kennedy, C.W. Jefferson,
D.R. Hughes and J.D. Murphy

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INTRODUCTION

This report is a review of the activity of the mining and exploration industry during 1971 and 1972 in that part of the Northwest Territories lying west of 104° longitude, and was compiled by the staff of the Resident Geologist's Office, Northern Natural Resources and Environment Branch of the Department of Indian and Northern Affairs. In 1971 the Yellowknife office acted predominantly as an information source for the mining and exploration industry providing up to date news on the exploration activity within the Territories as well as data from open file and published reports. In addition, the office fulfilled a combined role of expediter-supplier to the various government and university crews which used Yellowknife as a jumping-off point. The Yellowknife staff flew over 15,000 miles in bush planes while gathering field information and examining properties owned by mining companies and prospectors.

During 1972, the information services of the Yellowknife office were expanded to meet increasing demands for information. The Resident Geologist's office had three geological parties in the field; one mapped base metal deposits near High Lake and Indian Mountain Lake, a second mapped in the Camell River silver district and the third worked in the Beaulieu River greenstone belt. The results of two of these projects were published in Geological Survey of Canada open file reports while the Beaulieu River project was suspended due to the death of Robert J. Thorburn, the geologist in charge, who was killed in a plane crash. The Yellowknife office also funded a lake sediment geochemistry program covering parts of the greenstone belts near Yellowknife. Part of this study is now available through Geological Survey of Canada open file reports.

A core storage facility was constructed in Yellowknife in the fall of 1972. This facility is now available for storing core on a temporary or long term basis for interested exploration groups. It is planned to gradually build up a library of representative core from typical Mackenzie District mineral deposits. Facilities are being installed for core and rock cutting, and polishing, and for thin section and polished surface preparations.

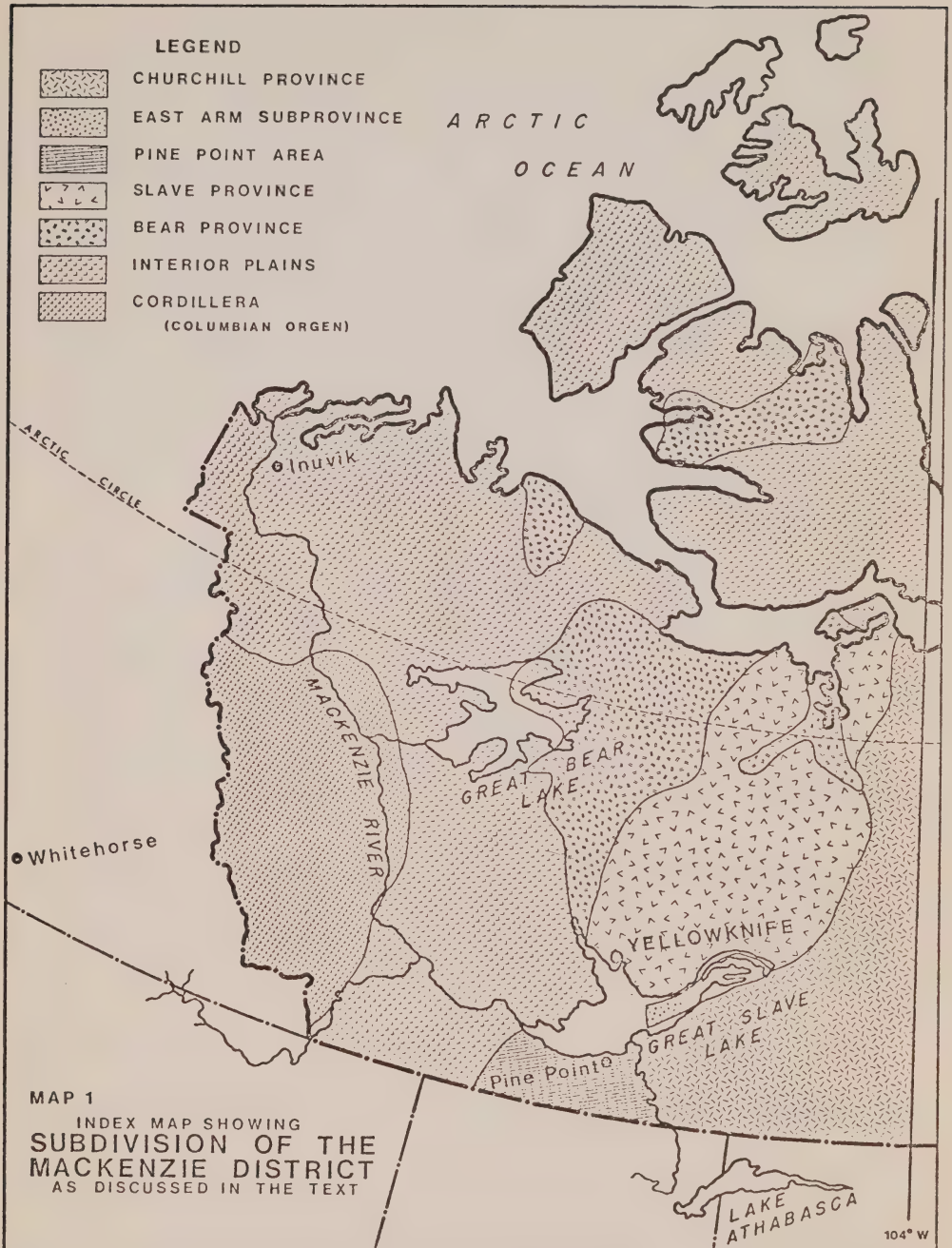
The last two years have marked a period of expansion of facilities, staff, and scope of programs supplied by the Resident Geologist's Office.

ORGANIZATION OF THE REPORT

The properties described in this report are treated in six sections which correlate with areas of the Mackenzie District that correspond to more or less distinctive geological provinces (see Map 1). A first section describes properties in the Churchill Province of the Canadian Shield to which the rocks in the southeastern part of the Mackenzie District belong. Properties in the East Arm Subprovince which separate the Churchill and Slave Provinces are treated next, then the Pine Point area, part of the Interior Plains, and then the Slave and Bear Provinces. The final section treats the Cordilleran Province, represented in the N.W.T. by the Columbian Orogen. A few properties lying in the interior plains between the Bear Province and the Columbian Orogen are included in this final section.

Within the six sections the report is organized on the National Topographic System. Properties or projects that cover more than one N.T.S. area are placed in the lower numbered area. Where more than one property lies in one area they are placed in alphabetical order by property name. In the reference section a list of the more recently published geological maps and reports is provided. Some, but not necessarily all, of the works cited have been used in checking property descriptions given in assessment files or in write-ups of visits by Resident Geologist's office staff to some of the properties. A list of assessment work submissions for each property are not included. These are available through computer monitor listings of the Canadian Index to Geoscience Data. Listings alphabetically by title, by National Topographic System area designation, and also by document number are available or in preparation. Document number listings give a list of concepts under which the report has been indexed and are therefore of considerable use in determining the quantity and in some cases quality of the information available in the individual reports.

For most of the properties discussed in this report, claim names and one or more representative tag numbers for the group or for each group (where there are more than one) are given. Tag numbers are not normally required in researching the assessment files, but in some cases the same claim names have been used more than once in the same or adjacent areas.



Map 1. Index map showing subdivisions of the Mackenzie District as discussed in the text.

SUMMARY OF EXPLORATION ACTIVITY

The 1971-1972 period saw the completion or continuation of a number of wide ranging exploration ventures for base metals in the Slave Province of the Canadian Shield, and late in 1972 the beginnings of a widespread search for lead and zinc in the Cordilleran region of the Northwest Territories. Airborne geophysical exploration programs over many of the greenstone belts in the southwestern half of the Slave Structural Province were conducted mainly in the late 1960's, with ground followup surveys conducted mainly between 1969 and 1972. Results were generally disappointing as no economically mineable deposits were uncovered. Results in the northeastern half of the Slave Province have been much more encouraging for here are a number of subeconomic, apparently volcanogenic massive sulphide deposits that contain attractive values in copper and zinc, or in lead, zinc and silver. The most recent discoveries have been made by Cominco Limited on the Bathurst Norsemynes property. These discoveries have sparked renewed interest by a number of major exploration companies in this part of the Territories.

Interest in the mountains between the Mackenzie River and the Yukon border, dormant for some years, revived suddenly in late 1972, following extensive staking by Canex-Placer in the Summit Lake area. Permit acquisitions and extensive staking resulted during the fall of 1972 and the winter of 1972-73. In the same general area, continued exploration for deeper ore zones at the Canada Tungsten Mine successfully delineated a significant ore body which is expected to be in production by 1974.

Routine exploration was carried on in the Pine Point area, mainly by Pine Point Mines Limited, and to a lesser extent by other companies including Conwest Exploration Co. Ltd. Pine Point Mines Ltd. continues to maintain its ore reserves at more than 40 million tons of current mine grade ore.

Extensive uranium exploration was carried on in the East Arm sediments mainly by Vestor Explorations Limited but no economic deposits have been found as yet though widespread low-grade mineralization and some local high grade zones have been tested.

A substantial rise in the price of gold resulted in a general reassessment of many gold showings in the Slave Province. Several promising properties have been restaked and this type of ground acquisition will continue for some time. A re-evaluation of the Con Mine's ore potential was

begun with the increase in gold price and all indications are that continued production at higher rates will be made possible. Material improvement of the life expectancy of the Giant Mine can also be predicted with the increase in gold price as much lower grade material can now be mined at a value.

Operating Mines

Production continued steadily from Pine Point, Cantung, Con, Giant and Echo Bay mines during 1971 and 1972. Production from Terra begun in 1969, was on a less regular basis due to a number of problems. Norex and Federated mines produced for a short time, and Hope Bay Mines shipped some high grade silver from its property on the Arctic coast. A summary of production statistics follows:

TABLE 1

Production Summary
N.W.T. Mines, 1971, 1972

<u>1971</u>	<u>Tons Milled</u>	<u>Production Ounces/lbs</u>	<u>Ton/Day</u>	<u>Grade</u>
Terra	48,714.1	1,193,396 Ag 783,208 Cu	133.5	41.4 oz/ton Ag 0.80 %Cu
Con	158,480	91,281 Au	434	0.576oz/ton Au
Giant	403,819	217,701 Au	1,106.3	0.539oz/ton Au
Pine Point	3,881,927	191,697,080 Pb 457,202,720 Zn	10,635.4	2.47 %Pb 5.89 %Zn
Echo Bay	35,985	2,445,709 Ag 663,176 Cu	98.6	68.0 oz/ton Ag 0.92 %Cu
<u>1972</u>				
Terra	24,722.5	1,917,922 Ag 189,269 Cu	68	78.0 oz/ton Ag 0.38 %Cu
Con	164,776	106,060 Au	450	0.644oz/ton Au
Giant	401,522	201,185 Au	1,097	0.501oz/ton Au
Pine Point	3,804,729	190,549,380 Pb 438,646,860 Zn	10,395	2.50 %Pb 5.76 %Zn
Echo Bay	37,291	2,456,386 Ag 785,682 Cu	101	65.0 oz/ton Ag 1.05 %Cu
Cantung	172,828	214,851 Cu *3,174,120(WO ₃)	466	0.62 %Cu

*Canadian Mining Journal, February 1974.

(Tungsten production figures are not readily available)

CHURCHILL PROVINCE

(Southeastern corner of
the Mackenzie District)

DONOVAN LAKE PROPERTY
Denison Mines Limited
20th Floor,
4 King Street West,
Toronto, Ontario.

75 D/3
60°03'N, 111°05'W

References:

Craig (1964); Wilson (1941)

Property:

VIT 1-36 A33801-36
TU 37-70 A33837-70

Location and Access:

The Donovan Lake property is located about 35 miles east of Fort Smith, N.W.T. Access is by float or ski-equipped aircraft from Fort Smith.

History:

Thirty-six VIT and 34 TU claims were staked in July 1971, by Pentti and Eero Rantee. Representation work presently on file is sufficient to keep the claims in good standing until 1974.

Description:

Ninety per cent of the VIT group at the north end of Donovan Lake, and about 75 per cent of the TU claims 4 or 5 miles to the south are underlain by granitic, sedimentary, and volcanic rocks altered mainly to gneiss and schist. The remaining claims are underlain by grey to pink rock ranging from granite to syenite which is locally porphyritic and foliated. These crystalline rocks are part of the Tazin Group of Archean age.

Current Work and Results:

Two zones with magnetic readings 500 to 1000 gammas above background were located by a ground magnetic survey during the summer of 1972. A Scintrex MF 2 Fluxgate magnetometer

was used on a total of 6549 stations spaced 50' apart along lines cut at 400-foot intervals from baselines run through the centre of each claim group.

The anomalies are caused by paragneiss lenses containing less than 10% pyrrhotite and pyrite, and in some cases, disseminated magnetite.

HOPE CLAIMS
Nissho-Iwai Canada Limited
Suite 801,
1111 West Hastings Street,
Vancouver, B.C.

U
75 D/3; F/14
61°59'N, 109°18'W

References:

Darnley et al. (1971); Stockwell et al. (1968); Taylor (1959, 1971)

Property:

HOPE 1-100 A34201-300
HOPE 101-109 A30796-804

Location and Access:

The claims located on Nonacho Lake, some 160 miles east-southeast of Yellowknife and 50 miles south-southwest of Reliance, are accessible only by float- or ski-equipped aircraft.

History:

The 109 HOPE claims were staked in July, 1971, by L. Yomamoto and D. Thorne, and transferred to Nissho-Iwai in August, 1972. Sufficient representation work has been done as of January, 1973 to keep the claims in good standing until June 1974 to June 1979.

Description:

The central and eastern part of the group are underlain by Archean paragneiss and granitic rocks and a small area on the west of the group is underlain by Proterozoic sedimentary rocks of the Nonacho Group which overlays the Archean rocks unconformably.

Mineralization encountered in the trenches consists of small amounts of pyrite, molybdenite, and uraninite. These minerals usually appear in mafic concentrations in the gneiss rather than in the quartz. Uranium stain was observed in many outcrops. Mineralization is found in biotite-quartz zones, shear zones and biotite-chlorite fissure zones.

Current Work and Results:

A number of anomalies, all in the gneiss, were outlined by radiometric and geological surveys done in August and September, 1972. A ground scintillometer survey located many anomalous zones and samples of these were tested in camp with the sensitive McPhar TV-5 scintillometer.

Of six zones surveyed, three were considered worthy of further exploration. These are (1) N-14 area, (2) James Mountain area and (3) Hope Mountain area. Deposits in these areas are 100 to 150 feet long and 3 to 10 inches wide. Grids were laid over the mineralized zones and close-interval scintillometer surveys, stripping and a small amount of trenching completed. Samples from four trenches assayed 0.10% U_3O_8 . Two trench samples had not been assayed when the report was completed.

LOX CLAIMS

G.V. Lloyd Exploration Limited
703 - 5th Street Southwest,
Calgary, Alberta.

U

75 E/6
61°10'N, 111°16'W

References:

Darnley et al. (1971); Henderson (1937, 1939)

Property:

LOX 100-122 A18738-47 and A18751-66

Location and Access:

The LOX group of 22 claims lie along the east bank of the Thubun River. They are accessible by canoe, along the river from the East Arm of Great Slave Lake or by air to either the river or two nearby lakes. Three lakes are partly covered by the claim group.

History:

These claims were staked in April 1971 to cover radioactive anomalies discovered the previous summer.

Description:

Part of the LOX group (claims 101-116) lie northeast of Cominco's KOM group, and the remaining LOX claims (117-122) lie to the south. The claims are underlain by granite, granodiorite and allied rocks (Henderson, 1939). Similar rocks on the KOM 1-10 claims were also found to be anomalously radioactive and although minor amounts of uranium were reported by assay, the bulk of the radioactivity is attributable to thorium, which is approximately 10 times more abundant than the uranium. The most intense radioactivity was reported over shear zones that strike 125°, but the best uranium mineralization was found disseminated in unshaped granite. In 1969 the Geological Survey of Canada conducted radiometric profile surveys with a gamma ray spectrometer system across parts of the Canadian Shield. Anomalously high uranium readings were obtained on a flight line crossing the Thubun River area over the area of the LOX and KOM groups. Little geological work or prospecting had been done previously in this area.

Current Work and Results:

A ground radiometric survey was conducted over this group with a Sharpe BGS-1 Beta Gamma scintillometer and the Sharpe GIS-3 differentiating spectrometer. A north-south base line 14,000 feet long with cross lines every 200 feet was surveyed by readings taken at 100-foot intervals. A total of 144,900 feet of cross lines were run using pace and compass control. The area covered is mainly grey to pink granitic rock with some mafic dykes and quartz veins. Tan granite in the northern sections of the claims bore higher radioactive background values than the pink granites to the south. Some dykes have above background radioactivity.

Radiometric readings were generally low, which in view of the lack of any well developed fractures, faults, or shear zones is not encouraging.

NONACHO LAKE AREA, PROSPECTING PROGRAM

Imperial Oil Limited

111 St. Clair Avenue West,

Toronto, Ontario.

75 F/13

61°51'N, 109°47'W

References:

Henderson (1937, 1939a); Hornal et al. (1974); Taylor (1971)

Property:

A reconnaissance survey of radioactive occurrences in the area around the BEN 1-16 (T22201-16) group.

Location and Access:

The BEN claims are located in the Nonacho Lake area approximately 160 miles east of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

For many years a number of radioactive showings have been known in the area around the BEN claims. Some exploration work was done on the BEN group prior to 1969 when the claims lapsed, (see Hornal et al. 1974).

Description:

J.F. Henderson (1937, 1939) mapped the region around the BEN group as granite of Proterozoic age, but he did not record any mineral showings in the area.

Current Work and Results:

Scintillometer surveys and some trenching were done on radioactive showings in the general area around the BEN claim group during 1971. The exact number of showings tested in this manner, and their location has not been reported.

PROSPECTING PERMIT 152

Bow Valley Land Co. Ltd.
300 Bradie Building,
600 - 6th Avenue Southwest,
Calgary, Alberta.

75 I/1
62°07'30"N, 104°15'W

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 152 75 I/1

Location and Access:

The area covered by permit 152 lies in the eastern part of the Mackenzie District approximately 200 miles east of the nearest settlement, Snowdrift, on the south shore of the East Arm of Great Slave Lake. Access is by small aircraft.

History:

Permit 152 was issued in 1969, work was recorded for that year and the permit was released in 1971.

Interest in this area centered on the uranium potential of the Thelon Formation, a dominantly sandstone unit lying unconformably on the Churchill Province metamorphic and igneous rocks.

Description:

The northwestern half of quadrangle 75 I/1 is underlain by Thelon Formation, essentially flat lying cratonic clastic rocks and the southeastern half is underlain by a basement of undifferentiated granites and related rocks. A northeasterly trending contact between these two rock types can be interpreted from published geological maps (Wright 1967), but there is little or no outcrop in large parts of the area.

Current Work and Results:

No work is reported for this permit during 1971, the year it was relinquished.

PROSPECTING PERMIT 115

Trudel Minerals Ltd.

75 I/7

Houston Oils Ltd.

62°22'30"N, 104°45'W

950, 355 - 4th Avenue Southwest,

Calgary, Alberta.

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 115

75 I/7

Location and Access:

The area covered by permit 115 lies near the headwaters of the Thelon River approximately 180 miles east of Snowdrift, the nearest settlement, which lies on the south shore of the East Arm of Great Slave Lake. Access is by small aircraft.

History:

Permit 115 was issued in 1969, work was done on the area in 1969, and the permit was released in 1971. The area was of interest because of the uranium potential of the clastic Thelon Formation.

Description:

NTS 75 I/7 is underlain mainly by Thelon Formation, which is dominantly sandstone. This part of the Paleohelikian Dubawnt Group lies on metamorphic and igneous rocks of the Churchill Province which outcrop in the western quarter of the area.

Current Work and Results:

Permit 115 was released in 1971. No work appears to have been done in connection with this permit during 1971. A description of previous years work is available in Hornal et al. (1974).

PROSPECTING PERMIT 175

Pan Ocean Oil Ltd. (1971)
(United Bata Resources Ltd.)
1050, 355 - 4th Avenue Southwest,
Calgary, Alberta.

75 I/10
62°37'30"N, 105°15'W

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 175 75 I/10

Location and Access:

The area granted under permit 175 lies near the eastern border of the Mackenzie District some 190 miles east of the closest permanent settlement, Snowdrift, which lies on the south shore of the East Arm of Great Slave Lake. Access is by small aircraft.

History:

Prospecting Permit 175 was granted in 1969. No work was recorded in subsequent years and the permit expired in 1972. Uranium potential of the clastic Thelon Formation, which lies unconformably on the cratonic shield rocks was the probable reason for the permit application.

Description:

Sandstone, with conglomerate and some silty units of the Thelon Formation, part of the Paleohelikian Dubawnt Group of cratonic sediments form the bedrock in the northeastern quarter of the quadrangle. The remainder, and probably the larger part of the area is underlain by Churchill Province granitic rocks. Outcrop is scarce particularly in areas underlain by the cover rocks (Wright 1967).

Current Work and Results:

No work has been done under prospecting permit 175 which expired in 1972.

PROSPECTING PERMITS 118, and 119
Canada Northwest Land Co.
920, 355 - 4th Avenue Southwest,
Calgary, Alberta.

75 I/8
75 I/14
62°22'30"N, 104°15'W
62°52'30"N, 105°15'W

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 118	75 I/8
Prospecting permit 119	75 I/14

Location and Access:

The areas covered by Permits 118 and 119 lie in the upper Thelon River drainage basin approximately 190 miles east of the nearest settlement, Snowdrift on the south shore of the East Arm of Great Slave Lake. Access is by small aircraft.

History:

Permits 118 and 119 were issued in 1969 but no work was recorded for them and they expired in 1972. The interest in the area was presumably centred on uranium possibilities at the base of the Thelon Formation, and probably resulted from exploration for uranium in the Athabasca Sandstone in Saskatchewan.

Description:

Both NTS 75 I/8, and I/14 are underlain by Paleohelikian Thelon Formation, a cratonic cover sandstone lying on metamorphic and igneous rocks of the Churchill Province. The latter complex forms the bedrock in the southwest corner of I/14 and the southeast corner of I/8.

Current Work and Results:

No work is known to have been done on either of these permits. They expired in 1972.

PROSPECTING PERMIT 105

Republic Resources Limited
660, 330 - 5th Avenue Southwest,
Calgary 1, Alberta.

75 I/16

62°52'30"N, 104°15'W

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 105

75 I/16

Location and Access:

Permit 105 covers 75 I/16 which lies approximately 240 miles northeast of Snowdrift, the nearest settlement, which is located on the south shore of the East Arm of Great Slave Lake.

History:

Permit 105 was issued in 1969. Work was recorded in 1969 and 1970 and the permit expired in 1971. Interest in this area was due to the uranium potential of cratonic cover rocks of the Dubawnt group.

Description:

NTS area 75 I/16 is underlain by flat lying coarse clastic rocks of the Thelon Formation, part of the Paleohelikian age Dubawnt group cratonic cover rocks.

Current Work and Results:

No work was done in 1971 on this permit area, which expired on March 31, 1971.

TEN GROUP

Getty Mines Ltd.

75 J/5

1904, 1177 West Hastings Street,
Vancouver, B.C.

62°25'N, 107°54'W

Reference:

Wright (1957, 1967)

Property:

TEN 1-71 A35001-71

Location and Access:

The 71 TEN claims are located in the Tent Lake area approximately 210 miles east-southeast of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

In July, 1971, G. McKay and M. King staked the TEN claims but as no work was recorded on them they lapsed in August, 1972.

Description:

The claim group is primarily underlain by Proterozoic Nonacho Group arkose, quartzite, slate, greywacke, conglomerate, minor volcanic rocks, phyllite and schist (Wright 1957). A small part of the property is composed of granitic rocks including granodiorite, granite, quartz diorite and syenite. Mineralization has not been reported.

Current Work and Results:

The TEN group was probably staked to cover radioactive anomalies, but as no mineralization of importance was found in place by a prospecting program, no work was recorded and the claims lapsed.

JANE GROUP
Great Plains Development Company
of Canada Limited
736 - 8th Avenue Southwest
Calgary, Alberta.

CaF₂, Pb, Mo, Cu
75 K/5
62°18'N, 109°47'W

References:

Brown (1950a); Henderson (1937); Hoffman (1968); Stockwell (1936); Wright (1952)

Property:

JANE 1-8 A45127-34

Location and Access:

The claims are located on Dusty Lake 144 miles southeast of Yellowknife. Access to this area is by float- or ski-equipped aircraft.

History:

On April 1, 1970, K.W. Denegar staked the JANE claims to cover the area surrounding a recently discovered fluorite showing. The claims were transferred to Great Plains Development Company of Canada Limited on December 21, 1970.

Description:

The claim area is primarily underlain by metamorphosed felsic igneous plutonic rocks that have been intruded by southwest trending diabase dykes.

Veins ranging from 1 inch to 1 foot in width and containing fluorite, massive galena, molybdenite, minor chalcopyrite and pyrite constitute the most interesting mineralization in the area. Quartz veins seven miles northwest of the claim group contain granular pyrite and pyrrhotite. No mineralization was found in the diabase dykes.

Current Work and Results:

A program of geological mapping, prospecting and trenching was conducted over the claim group during the summer of 1971. The rocks are reported to be metamorphosed "granites". A vertical joint system trending 150° is the main structural feature. A vein traced over a strike length of 300 feet, sub-parallel to the joint system, is composed mainly of quartz,

orthoclase, and fluorite with galena and minor chalcopyrite, pyrite, molybdenite, sericite and chlorite. White, light purple and dark purple fluorite are reported to be present. The vein is considered to have had a hydrothermal origin and is fracture controlled. Potassium metasomatism is suggested by the presence of as much as 10% orthoclase in the vein.

Work, in 1972, consisted of enlarging three trenches on JANE 5 claim and assaying samples for fluorite, molybdenum, lead, copper, silver, and gold. An assay of 42.80% CaF_2 was obtained from a selected sample taken from the rock exposed during trenching. The highest grade channel sample contained 26.78% CaF_2 . All other values were very low.

The fluorite veins appear to be confined to northwest trending fractures; therefore, further work should be concentrated along these fractures in order to define the extent of mineralization.

BC CLAIMS

Imperial Oil Limited
111 St. Clair Street West,
Toronto, Ontario.

75 L/6
62°17'N, 111°16'W

References:

Barnes (1951, 1953); Brown (1950c); Hoffman (1968, 1973);
Stockwell (1936); Wright (1951)

Property:

BC 1-4 A38522-25

Location and Access:

The BC claims are located in the Christie Bay area of the East Arm of Great Slave Lake approximately 120 miles east of Yellowknife. Access is by boat or float- or ski-equipped aircraft.

History:

R.A. Olson staked the 4 BC claims in August, 1972, following a metallogenic study and extensive prospecting in the East Arm.

Description:

Rocks of the Stark Formation underlie the property. These Proterozoic rocks belong to the Et-then Group and consist of dolomite, limestone, breccia, and shale. A north-trending diabase dyke cuts along the eastern boundary of the property. Radioactive minerals have been located southwest of and northeast of the property (Wright 1951).

Current Work and Results:

During the summers of 1971 and 1972; Trigg, Woollett and Associates conducted a prospecting program and a metallogenic study of the East Arm Supergroup rocks (Hoffman 1968, 1973) for Imperial Oil Limited. Numerous showings were investigated and regional geological studies performed.

The BC group was staked as a result of this program.

CB, BELL, BEV and GONE CLAIMS
Nor-Can Minerals Limited
10534, 109th Street,
Edmonton, Alberta.

Cu, Pb, Ba, CaF₂, Au
85 H/7,8,9,10
61°32'N, 112°00'W

References:

Brown (1950a, 1950b, 1950c); Camsell (1916); Douglas (1959); Hoffman (1968); Lord (1941); Reinhardt (1969); Stockwell (1936); Thorpe (1972a)

Property:

CB 1-11, 14, 18-27, 34-43 N82221
BELL 2 N36405
BEV 14, 22-24, 29-44, 91-97, 99, 103-104, 116 A5943
GONE 22-23, 26-28, 31-33, 35-43, 45-48, 57 T54222

Location and Access:

The claim area is on the south shore of Great Slave Lake at the mouth of the Thubun River about 110 miles northeast of Hay River. Access is by float- or ski-equipped aircraft, or by boat in the summer. A bush road bulldozed across the property, can be used in summer.

History:

A large claim group covering part of the present claim area was staked by C.C. Bevan in 1948 as a uranium prospect. No uranium was found and it was believed that the radiation recorded was caused by disseminated thorium. However, it was thought that base metals might be found as copper mineralization was seen in many places. The claims subsequently lapsed.

The ground was staked as the CB, BELL, BEV and GONE claims between 1964 and 1969. All of the claims were transferred to Bevco Mines Limited (NPL) before March 1970 and again to Nor-Can Minerals Limited in June 1972.

During the summer of 1966 a geological map of the area was made, thirteen trenches, totalling 76 square yards were excavated and six holes totalling 650 feet were drilled. The best assays were 2.5% Cu over 13 feet, 0.60 oz/ton Ag over 5 feet, and 0.16 oz/ton Au over 17 feet. An EM survey was run over 1½ line miles on north-south lines 100 feet apart. Readings were taken every 100 feet. Seven of the twelve anomalies that were outlined by the survey were mapped and all are associated with copper mineralization.

A geological report of the BEV, CB and GONE claims in 1967 reported four mineralized areas of specific interest, but no targets for a drilling program were outlined.

In March, 1968, 113 north-south lines of an aeromagnetic survey were flown over the BEV, CB and GONE claims by helicopter. The lines varied in spacings from 300 to 500 feet. Principal anomalous regions were found between 80+00 east and 180+00 east. Two areas 'A' (Mahegan) and 'B' (Bell) were recommended for ground geophysical work.

In July, 1968, detailed EM and geological surveys to determine the cause of the aeromagnetic anomaly on BEV 112 and 113 found the structural environment favourable for mineralization along the intrusive contact but no mineralization was noted. No cause for the anomaly was found, but it was established that it does not indicate a linear band of electrically conductive material. The EM equipment used on this survey was shown to have poor depth penetration.

In July, 1968, 8½ line miles of an EM survey were run in search of linear conductors coincident with selected anomalies defined by the previous aeromagnetic survey. Two weak, short electromagnetic anomalies were found. One of these

displays characteristics of a conductor in bedrock, the other anomaly is thought to be caused by overburden.

During the summer of 1968 the entire claim area was mapped at a scale of 1" to 500' to establish a relation between the aeromagnetic anomalies and surface geology, and to gain general information on the lithology and structure on the property. It was concluded that most of the aeromagnetic anomalies probably represent sharply defined narrow shears.

In 1969, 11 drill holes totalling 1500 feet and two trenches were completed. The best assays obtained were 2.2% Cu over 8.3 feet and 0.12 oz/ton Ag over 6 feet.

Description:

The area is underlain by a migmatite complex of granites and gneisses. Nearly 50% of the rock exposed is aplite and granite intrusives. Nine showings were studied during a 1972 geological survey. In order of importance they are the main showing on BEV 96 and 99, Mohagan-Burton showing on CB 2, Northwest showing on BEV 95 and 102, southwest showing on BEV 73, BEV 24 showing, east of BEV 97, north of BEV 96, BEV 92 showing and GONE showing. The mineralization consists mainly of chalcopyrite which in places is associated with fluorite, barite, or galena in breccia zones, veins, stringers, and disseminations in adjacent gneisses.

Current Work and Results:

A short investigation of the showings in April 1972 aided in the summarizing of all available data from published and unpublished reports on the geology and exploration of the area.

DB GROUP
Fred Diamon
Box 291,
Hay River, Northwest Territories.

85 H/9
61°43'N, 112°07'W

References:

Hoffman (1968); Reinhardt (1969)

Property:

DB 1 and 2 T77670

Location and Access:

The DB claims are located on the south shore of Hornby Channel of the East Arm of Great Slave Lake, 2 miles north of the ED group.

History:

These claims were staked in 1971 during a prospecting program partly financed by an N.W.T. prospectors assistance grant.

Description:

These claims lie about two miles northeast of the ED group and have similar rock types so that the description of the ED group essentially applies to the DB 1 and 2 as well, (see ED and BB claims, page 23).

Current Work and Results:

Two trenches were blasted on DB 1 during September 1972.

ED GROUP, BB GROUP

Fred Diamon

Box 291,

Hay River, Northwest Territories.

Ag, Cu

85 H/9

61°51'30"N, 112°10'W

References:

Baragar and Hornbrook (1963); Hoffman (1968); Lord (1951); Reinhardt (1969)

Property:

ED 1-9 N80136

BB 1-3 N89898

Location and Access:

The ED group is located on the south shore of Hornby Channel in the western part of the East Arm of Great Slave Lake. The claims, which border the lake shore are readily accessible from the lake.

History:

Numerous showings containing copper, uranium, or base metals have been recorded in the East Arm of Great Slave Lake (Lord 1951, Baragar and Hornbrook 1963). None have yet proved large enough to be mined, but the area is a good one for conventional prospecting particularly in view of its proximity to the McDonald Fault System.

The ED claims were staked in 1968 during a prospecting program in part financed by a N.W.T. prospectors assistance grant.

Description:

The ED claims lie along one of the more northerly trending splays of the McDonald Fault System which appears to connect the La Loche River fault on the south with the northern or main part of the McDonald Fault System near McDonald Lake. Reinhardt (1969) shows 6 copper showings along this fault--one of these contains galena and another galena and sphalerite as well. The fault on the ED claims is presumably located along the lake shore at the foot of a steep scarp that reaches 200 to 250 feet above the lake level. Outcrop in the area is extensive, possibly covering 75% of the claims.

Reinhardt (1969) mapped the area later staked as the ED claims as "greenish grey to dark grey quartzofeldspathic chlorite-muscovite (-biotite) cataclasite, schist, and fine-grained amphibolite; origin obscured by cataclasis and recrystallization" (unit 4 op. cit.).

Most of the rocks exposed on the ED claims show a well developed cataclastic texture. It is difficult, if not impossible, to determine from outcrop and hand specimen examination the original nature of these rocks. Some are probably sheared granodioritic intrusions, others may have been mafic volcanics. There are also calcareous and quartz rich units, whose origin is even less definite. Some slightly altered and broken brownish sandstone outcrops on the ED 7 claim in the southwest side of the group. This material is probably sandstone of the Et-then Group of Hoffman (1968).

A trail starting at the dock and campsite, leads up the scarp beyond the lakeshore, turns to southerly at the top of the steep slope and leads across the outcrops to a southwesterly trending base line along which trenches and drill holes have explored mineralized shears.

Current Work and Results:

During 1971 seven small trenches were blasted on the ED 1 and 6 claims and three short holes totalling 288 feet were drilled on ED 6 claim. Mineralization exposed in the trenches consists of disseminated chalcopyrite and small amounts of leaf silver smeared on shear plane faces. The drill holes intersected narrow widths of native silver and sparsely disseminated chalcopyrite in generally sheared chloritized, and epidotized mylonitic rocks.

A number of mineralized intersections containing carbonate and quartz veinlets with pyrite disseminated in grey green metavolcanic(?) rock gave low assays in silver (less than 1 oz per ton over narrow widths). Best assays recorded in hole 1 were: 24.0' - 24.5', 9.91 oz Ag/ton; 27.0' - 28.0', 29.5 oz Ag/ton; and 49.5' - 57.0' (7.5 feet at 3.38 oz Ag/ton). Hole 2 returned 7.11 oz Ag/ton between 46 and 51 feet; 46.06 oz Ag/ton between 51 and 51.5 feet and 3.41 oz Ag/ton between 51.5 and 57 feet. Assays for hole 3 returned negligible silver.

During 1972, six trenches on ED 1 and 6 were enlarged by removing 33 cubic yards of rock, and a more extensive drilling program consisting of four holes was completed.

Three holes, No. 5 (301'), No. 6 (180') and No. 7 (363') were drilled from the east side of the base line and angled down to the northwest to cross the mineralized zones exposed in the pits, and in the first three holes which had been drilled in the same direction but tested shallower levels below the pits. Hole 4 was collared beside hole 3 near the base line and drilled to the northeast for a length of 94 feet. Assays from these holes were not encouraging and suggest the silver values are erratically distributed.

EAST ARM SUBPROVINCE

ANN GROUP	Cu, Au, Ag
Hudson's Bay Oil and Gas Company	75 K/11
320 - 7th Avenue Southwest,	62°39'N, 109°20'W
Calgary, Alberta.	

References:

Baragar (1961); Brown (1950a); Hoffman (1968); James (1972); Stockwell (1936); Thorpe (1971)

Property:

ANN 1-16 93217-32

Location and Access:

The ANN group is one of several copper properties along the Murky Fault Zone in the East Arm of Great Slave Lake. Access to these claims on the northeast shore of Meridian Lake is by float- or ski-equipped aircraft. Barge transportation to Reliance from Hay River is also available.

History:

This property was first staked in July, 1955. Two mineralized sections along the main zone were investigated by Giant Yellowknife Mines Ltd. in 1957, and by Cominco Ltd. in 1959. Both companies did extensive trenching which returned some good assay results including 0.98% Cu across 11 feet. Giant Yellowknife Mines Ltd. drilled 798 feet and one core inter-section 20 feet long assayed: 0.62% Cu. According to Baragar (1961), two samples from Cominco Ltd. trenches assayed: 0.06 oz/ton Au across 12 feet.

In 1967, 12 holes, totalling 2915 feet, were drilled to investigate the A and B parts of the mineralized zone. The best assays were: 0.32 oz/ton Au in hole #5, 4.44 oz/ton Ag in hole #5, and 1.62% Cu in hole #8.

Description:

Three Groups: the Sosan, Kahochella, and Pethei are present in this area. They are composed of limestone, shale, mudstone, and quartzose conglomerate. The limited amount of outcrop makes field study difficult.

A broad anticline in the northeast portion of the property and a 1200-foot wide uplifted fault block bounded

by the northeast-trending Murky Fault and a subparallel fault through the southeast part of the claim area are the only structural features recognized on the property. Near vertical shear structures obliterate much of the bedding.

Chalcopyrite-bearing, quartz-calcite stockworks and fracture fillings within the rocks of the Pethei and Kahochella Groups occur along the Murky Fault on the claims.

Current Work and Results:

A Turam survey conducted by Geosearch Consultants Limited over the eastern half of the East Arm and also the McDonald Fault in the spring of 1971 failed to locate a conductive body. Several IP anomalies located by a Sparton Aero Limited survey in July, 1971, were mapped later in the summer of 1971. The best exposed section graded 0.45% Cu over a 148-foot width.

Lateral fault restrictions appear to limit the potential of the Murky Fault zone. The relationship between this occurrence and the Churchill copper deposit to the east is not known.

KIZ, LEE and MAC GROUPS	U
Steelhead Mining and Exploration Ltd.	75 L/7
11833 - 53rd Street,	62°20'N, 110°40'W
Edmonton, Alberta.	

References:

Barnes (1951, 1953); Bell (1902); Brown (1950b); Hoffman (1968, 1969)

Property:

KIZ 1-44	A30132
LEE 1-22	A30336
MAC 1-24	A30389

Location and Access:

The KIZ, LEE and MAC groups comprise 90 claims in three separate groups located at the east (KIZ), west (MAC) and north (LEE), ends of Lac Duhamel in the Snowdrift area of the East Arm Subprovince (see Map 2, P. 37). Stark Lake, Snowdrift River and Lac Duhamel provide access by water from Great Slave Lake.

History:

The claims were staked in 1971 to cover areas of Sosan Group strata (Tables II and III pages 32 and 34) which contain uranium showings at many localities in the East Arm. Some of the KIZ group claims cover ground previously covered by Vestor's BERG and HERZ groups (see Map 2, No. 7 P. 37).

Description:

The KIZ, LEE and MAC groups are mainly underlain by gently folded Sosan Group sandstones.

Current Work and Results:

W. Kizan prospected the KIZ group in 1971 shortly after the claims were staked and located three zones of low grade uranium mineralization. These were trenched and assays of obviously leached samples of oxidized uranium mineralization gave values ranging from 0.002 to 0.057% U_3O_8 . The best assay, of a sample collected across 8 feet, was: 0.21% U_3O_8 .

R.D. Morton wrote a brief report on the Geology and economic potential of the property in 1971.

G GROUP
Giant Yellowknife Mines Limited
Box 40,
Commerce Court West,
Toronto, Ontario.

Cu
75 L/9
62°43'N, 110°05'W

References:

Hoffman (1968); Wright (1951)

Property:

G 1-58 A10666-723

Location and Access:

The claims are located on Douglas Peninsula, East Arm of Great Slave Lake, 130 miles east of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The 58 G claims were staked by Hector Whitford and J. Arden for Giant Yellowknife Mines Limited in September 1969. A reconnaissance geological report was completed during the summer of 1970.

Description:

The area is underlain by east-west striking Proterozoic carbonates of the Pethei Group, mainly composed of members of the Hearne, Wildbread, Utsingi, and Tultheilei Formations. These sedimentary sequences are overlain to the north and south by late Proterozoic diabase sills. Diabase dykes and quartz-carbonate veins in the area trend in a northwest direction.

Quartz-carbonate veins host disseminated chalcopryite mineralization. They are found in gash fractures which trend approximately perpendicular to two main northeast striking faults.

Current Work and Results:

During the summer of 1971, the claim group was geologically mapped at a scale of one inch to 500 feet. The mineralized zones were mapped at one inch to fifty feet and a number of trenches blasted into them. Assays from grab samples recorded a maximum of 2.1% Cu.

BBX GROUP	Cu, Ag
BBX Syndicate	75 L/12
c/o L.J. Siega,	62°34'N, 111°34'W
St. Alberta, Alberta.	

References:

Stockwell and Kidd (1932); Wright (1952)

Property:

BBX 1-40 T70454

Location and Access:

This property lies between Aristifat's Lake and Taltheilei Narrows, in the East Arm of Great Slave Lake and can be reached by boat and float- or ski-equipped aircraft from Yellowknife 92 miles to the west.

History:

The showings were described in 1931 but the date of discovery is not known. Prior to 1949, three groups of claims were staked on the showings. Additional staking was done in 1949 and a total of 61 claims in 7 groups including the BBC, COPPER, PER and JET were recorded by that time.

Preston East Dome Mines Limited, optioned the property from C. McAvoy in 1956 and carried out about 3,000 feet of diamond drilling before dropping the option. Rio Tinto Canadian Exploration Limited took over the Preston East Dome exploration program in 1958; the drill core was re-assayed and re-examined but the property was not reoptioned.

Description:

The showings occur near a contact between the Sosan Formation and overlying Kahochella Formation. Copper mineralization is found in brecciated sandstone and in fractures in diabase. The sulphide mineralization, as seen in drill cores, reportedly occurs in a basalt breccia and consists of minor pyrite with varying amounts of disseminated chalcopyrite and minor smaltite. In several places sulphides occur in fractures filled with carbonates. The copper content over reasonable widths of drill core, are usually low, the best being about 1 per cent. Two grab samples from the adjacent PER group reportedly assayed: 0.06 oz Au/ton.

Current Work and Results:

In 1971 a preliminary geological survey for the BBX Syndicate was conducted over the claims; and the copper showing exposed by previous trenching on BBX 2 claim was covered by an IP survey. Interpretation of previous drilling results and the recent geological and geophysical field surveys suggest that the BBX 2 mineralized zone is relatively small, but approximately 5,000 tons of this zone contains 6.13% copper and 2.6 ox/ton silver. The copper and silver content appears to be based on a 21-foot channel sample from trench 1.

Five of the 13 holes drilled returned 10 to 26 foot wide intersections of mineralized conglomerate at vertical distances of 30 to 192 feet from surface. Core samples, assayed in 1971, returned: 0.02% to 0.05% Cu and up to 0.111 oz/ton Au. Five mineralized shear zones occur on the BBX 9 and 10 claims, located 1/3 to 1/2 mile north of BBX 2 showings. A channel sample of shattered wall rock adjacent to the D 1 shear-vein assayed 0.35% Cu. A channel sample from shear-vein

D 3 assayed 0.06% Cu across 8 feet of quartz and 0.18% Cu across 9 feet of adjacent shattered wall rock.

In August 1972, 1100 feet of core was drilled in 7 holes to test a promising copper-silver showing. Although drilling failed to locate any ore it did give a clearer picture of the local geology. The high grade surface mineralization appears to decrease in value at depth and not to extend laterally.

QYZ, LID CLAIMS	U
Claymore Resources Ltd.	75 K/10,11
1830-1 Bental Centre,	62°40'N, 109°06'W
P.O. Box 49057,	
Vancouver, B.C.	
V7X 1G1	

References:

Bell (1902); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969); Lausen (1929); Rutherford (1929); Stockwell (1932, 1936); Stockwell et al. (1968); Wright (1951, 1952)

Property:

LID 1-20	A14575-93	75 K/10
QYZ 1-25	A14170-93	75 K/11

Location and Access:

The LID and QYZ groups are situated at the east end of the East Arm of Great Slave Lake along the south shore of Charlton Bay (Nos. 15 and 16 Map 2, P. 37). They are accessible by aircraft or by boat. Reliance lies a few miles to the north, and Snowdrift, the nearest centre with scheduled air service, lies approximately 45 airmiles to the west.

Description:

Rocks underlying the QYZ and LID groups are mainly Sosan and Kahochella Group formations. Two lithologies of Sosan Group Hornby Channel Formation are reported (1) a purple to buff coarse-grained sandstone and minor conglomerate and (2) a red to dark-red fine-grained and hematite-rich sandstone. Kluziai, Akaitcho and Gibraltar Formations are also present. These rocks generally strike northeast and dip from 20° to 60° to the northwest.

A few faults trending northeast parallel to the MacDonald Fault are present and quartz veins, some of them mineralized, occupy some of these faults or parallel trending joints.

Current Work and Results:

Geological mapping and radiometric prospecting of the claims blocks during 1971, disclosed radioactive occurrences in the hematite-rich sandstone of the Hornby Channel Formation on the QYZ group. The strength of the radioactive anomalies appears to be directly related to the hematite content of the rock.

Outcrop is sparse on the LID claims and only sporadic showings of low radioactivity were encountered.

TABLE II

Comparison between the Stratigraphic Nomenclature for the "Great Slave Group" used by Stockwell (1936) and Hoffman (1968).

formations on the north limb of the synclinorium		groups	formations on the south limb of the synclinorium	
Stockwell(1936)	Hoffman (1968)	Hoffman (1968)	Hoffman (1968)	Stockwell (1936)
(eroded)	(eroded)	CHRISTIE BAY	Pearson	Pearson
	Tochatwi		Portage Inlet	Tochatwi
Stark	Stark		Tochatwi	
			Stark	Stark
Pethel	Hearne	PETHEI	Pekangatui Point	
	Wildbread		Blanchet ¹	
	Utsingi		McLean	
	Taltheilei ¹		Douglas Peninsula	
Kahochella	Douglas Peninsula	KAHOCELLA	Douglas Peninsula	
	Charlton Bay		Charlton Bay	Kahochella
	McLeod Bay		McLeod Bay	
	Gibraltar		Gibraltar	
Sosan	Seton ¹	SOSAN	Seton ¹	
	Akaitcho River		Akaitcho River ²	
	Kluziai		Kluziai	Sosan
			Duhamel ¹	
			Hornby Channel	

¹absent in east half of synclinorium

²absent in west half of synclinorium

Vestor Explorations Limited,
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

U
East Arm,
Great Slave Lake

During 1971 Vestor Explorations conducted prospecting, geological mapping, radiometric surveys and diamond drilling on a number of claim groups in the East Arm of Great Slave Lake. These claim groups cover parts of NTS areas 75 K, 75 L, and 85 H. For the purposes of this report the various claim groups have been treated in four sections, Fort Reliance, Snowdrift, Simpson Island, and Wilson Island, each designated by their propinquity to a relatively well known location within the East Arm. Map 2 shows the approximate location of Vestor's claims in the East Arm Subprovince.

Tables of formations from Hoffman (1968) for the Great Slave Group and the Reliance area are given in Tables II (32) and III (34).

PART I
FORT RELIANCE AREA

Vestor Explorations Limited
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

U
75 K/10,11,14,15
62°37'N - 62°47'N
109°00'W - 109°58'W

References:

Bell (1902); Bottrill (1971); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969); Lausen (1929); Rutherford (1929); Stockwell (1932, 1936); Stockwell et al. (1968); Wright (1951, 1952)

Property:

The Fort Reliance area is used in this report to designate the location of 5 claim groups totalling 178 claims in NTS 75 K.

HEB 1-31	A14138-69	75 K/10
MER 1-36	A11471	75 K/11
MAID 1-18	A19806-21	75 K/11
MAU 1-73	A14501-73	
ZED 1-12	A6990	75 K/14
ZED 13-20	A13996	75 K/15

TABLE III

Simplified Table of Formations, Reliance Area

Era	Supergroup	Group	Formation	Lithology
Aphebian	1295 m.y.	MacKenzie Swarm		Diabase Dykes
	Intrusive Contact			
	Great Slave	Christie Bay Group	Stark Formation	Mudstone, red, hematitic; intercalated yellow dolomite
		Pethei Group	Utsingi Formation	Limestone, stromatolitic; minor dolomite
			Douglas Penin. Formation	Shale, calcareous, red; minor limestone; marlite
		Kahochella Group	Charlton Bay Formation	Argillite, black to green
			McLeod Bay Formation	Shale, concretionary, red; minor conglomerate
			Gibraltar Formation	Shale, red and pale yellow-qtz-pebble conglomerate; siltstone
			Seton Formation	Tuffs; rhyolite
		Sosan Group	Akaitcho River Formation	Siltstone, red; fine-grained red sandstone
			Kluziai Formation	Sandstone, buff, thin-bedded
			Hornby Chan. Formation	Conglomerate; conglomeratic sandstone; sandstone
	Unconformity			
Archean	2460 m.y.			Granite; granodiorite
	Intrusive Contact			
		Yellowknife Group		Gneisses; schists and migmatite

Location and Access:

These claims are located on the eastern tip of the East Arm of Great Slave Lake, 160 miles east-northeast of Yellowknife, N.W.T. and within a 20 mile radius of Fort Reliance. The area may be reached by boat from Yellowknife or Hay River during the summer, by winter road across Great Slave Lake during the winter, and by airplane at most times of the year.

History:

These claims were staked to cover possible uranium bearing rocks of the Sosan Group.

Description:

The Reliance claims of Vestor's Explorations Limited are located in four separate areas each with slightly different local geology.

MER and MAID claims:

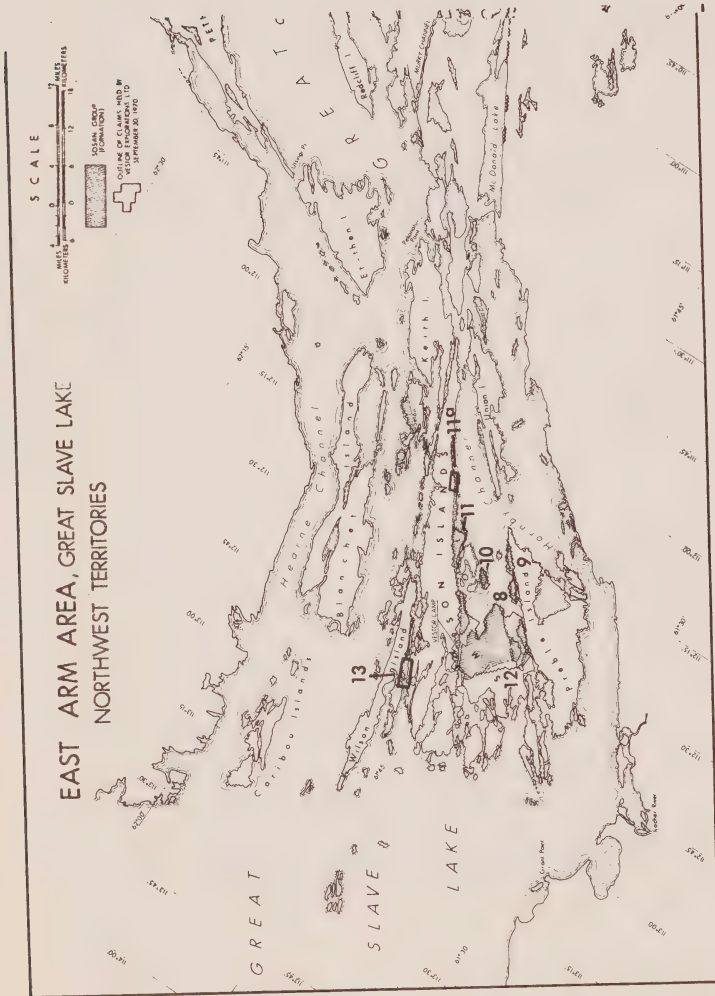
The MER and MAID claims are underlain by Archean granites and Sosan, Kahochella, and Pethei Groups. Archean granite exposed at the core of a northeasterly plunging anticline, is not seen in normal contact with overlying Sosan Group because contacts are faulted or covered. The only part of the Sosan Group identified in this area is the buff and red conglomeratic sandstone of the Hornby Channel Formation.

The Sosan Group (see Tables II and III) is overlain by the Kahochella Group as the Seton Formation volcanics are missing from this area. Red and green laminated shales of the Gibraltar Formation overly the Hornby Channel Formation. The Gibraltar Formation is overlain by calcareous concretionary shales of the McLeod Bay Formation which in turn is overlain by finely laminated green and black Charlton Bay Formation argillite, the uppermost formation of the Kahochella Group.

The Douglas Peninsula Formation and the Utsingi Formation of the Pethei Group overly the Kahochella Group. Red calcareous shale of the Douglas Peninsula Formation conformably overlies the Charlton Bay Formation. The Utsingi Formation which overlies Douglas Peninsula rocks is a thick bedded stromatolitic limestone.

MAU, HEB and ZED claims:

These claims are underlain by much the same stratigraphy as the MER and MAID claims with the exception that the Kluziai arkosic orthoquartzite and the Akaitcho micaceous



Map 2

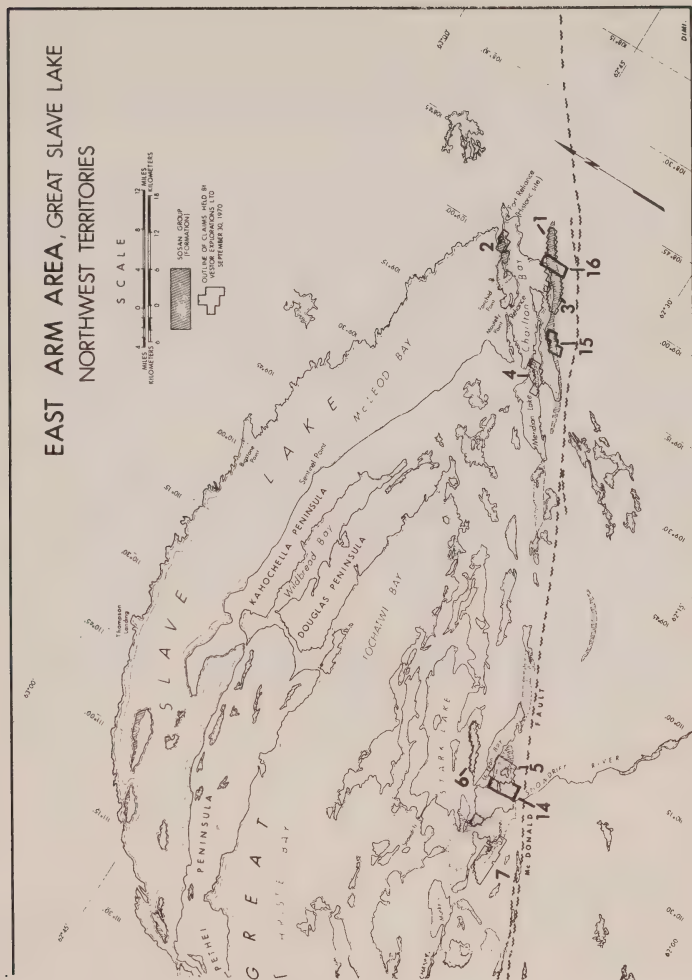
Vestor Claims in
Western Part of
The East Arm Area

- 8 QUE 1-18
- 9 NON 1-20
- 10 BAH 1-14
- 11 REF 1-39
- 11a RIP 1-12, OFF 1-4
- 12 BETH 1-26, F 7-9,
G 42-73, QUI 1-25,
SAX 1-28, SIM 1-345,
TOR 1-9, VES 1-4

Other Claims

- Claymore Resources Ltd.
- 13 VAN 1-26

MAP 2 Location Map of Claims Staked to Cover Potentiall Uraniferous Portions of the Basal Sandstones in the East Arm Subprovince. (West Half)



Vector Claims in
Eastern Part of
The East Arm Area

- 1 HEB 1-31
- 2 ZEB 1-20
- 3 MAU 1-73
- 4 MAID 1-18, MER 1-36
- 5 HECK, HK, JSD,
REEF and SOS
- 6 US 1-37
- 7 HERZ 1-52, GER 1-96
- 14 HECK 11-23, VER 1-20

Other Claims

Steelhead Mining
7 KIZ 1-44

Claymore Resources Ltd.

- 13 VAN 1-26
- 15 QYZ 1-27
- 16 LID 2-20

Location Map of Claims Staked to Cover Potentially Uraniferous
Portions of the Basal Sandstones in the East Arm Subprovince.

MAP 2
(East Half)

siltstone and sandstone are present here. In addition, the ZED claims contain a 100-foot thick tuff unit which is part of the Seton Formation, the lowermost member of the Kahochella Group.

All the rocks in the four claim areas have been intruded by northerly trending diabase dykes of the Mackenzie Swarm.

A northeasterly plunging anticline on the MER and MAID claims and is bordered on its south side by a fault and a syncline located on the south side of this fault also has a northeasterly plunge. On the MAU, HEB, and ZED claims the bedding generally strikes in northerly and northeasterly directions and dips 30° to 40° to the northwest.

Current Work and Results:

Preliminary prospecting, in 1970, delineated an anomalous zone on the MER claims. Follow-up prospecting and geological mapping, in 1971, found a second anomalous zone located at the nose of the northeasterly plunging anticline on the MER claims. Samples were assayed and one was reported to contain 6.7% U_3O_8 . The majority of the uranium showings were found within the Hornby Channel sandstones with only an occasional occurrence in the Kluziai Formation. No anomalous radioactive zones were found on the ZED, MAU and HEB claims.

PART II SNOWDRIFT AREA

Vestor Explorations Limited
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

U
75 L/8
 $62^{\circ}20'N$, $110^{\circ}25'W$

References:

Bell (1902); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969); Lausen (1929); Rutherford (1929); Stockwell (1932, 1936); Stockwell et al. (1968); Wright (1951, 1952)

Property:

Consists of a total of 204 claims of the HECK (A45411); HK (A45401); JSD (A45301); SOS (A14101); REEF (A45201); VER (A14201) and US (A45239) groups.

Location and Access:

The property is located on the south side of the East Arm of Great Slave Lake, 140 miles east of Yellowknife and 30 miles east of Snowdrift. The claims are accessible by aircraft from Yellowknife and Hay River.

History:

These claims were staked to cover Sosan Group rocks.

Description:

The claims centered on Toopon Lake are underlain by the Sosan Group. The lowermost member of the Sosan Group, the deformed carbonates of the Duhamel Formation underly the Kluziai Formation south of Toopon Lake (Table II, P. 32). The Kluziai Formation is 1200 feet thick in this area and can be subdivided into a lower and upper unit. The lower unit is red to buff coloured orthoquartzite and the upper unit is orthoquartzite, containing pebble conglomerate bands. The Kluziai orthoquartzites are overlain by red micaceous siltstones of the Akaitcho River Formation, the uppermost member of the Sosan Group.

The Seton Formation and the Gibraltar Formation are the lower members of the Kahochella Group which overly the Sosan Group. The Seton volcanics are predominantly acidic and intermediate pyroclastics which may locally contain andesitic flows. Red and green shales of the Gibraltar Formation overly the Seton volcanics and are the youngest sedimentary rocks in the claim area.

The predominant structural feature in the area is a northeasterly plunging anticline whose axis trends through the middle of Toopon Lake. Minor folds are present on the anticline limbs within the individual rock units. The deformation within the formations varies with properties of the constituent rocks.

Current Work and Results:

Prospecting and exploratory scintillometer surveys, in 1970, outlined three anomalous radioactive zones. Trenching and detailed geological and scintillometer surveys, in 1971, further delineated the three radioactive zones found in 1970 and as well, found a large number of smaller showings. The largest zone has a strike length of 3,500 feet and a width of 200 feet. All the showings were found within the Kluziai Formation or-

thoquartzites. The siltstones of the Akaitcho Formation have a relatively high radioactive background but lack any anomalous radioactive concentrations. No anomalies were found north of McLean Bay on Stark Lake.

Two types of uranium mineralization are recognized here. The first type is oxidized and is associated with red hematite stained orthoquartzite. The other is associated with dark orthoquartzite which usually contains higher uranium concentrations than the oxidized material. Samples submitted for analysis contained a maximum of 0.56% U_3O_8 , 0.20% Cu and 0.24 oz/ton Ag; most samples contained lesser amounts.

PART III
SIMPSON ISLAND

Vestor Explorations Limited
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

U
85 H/9, 10, 15, 16
61°45'N, 112°30'W

References:

Bell (1902); Bottrill (1971); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969); Lausen (1929); Rutherford (1929); Stockwell (1932, 1936); Stockwell et al. (1968); Wright (1951, 1952)

Property:

QUI 1-13, 16-18	85 H/9
SIM 71-79, 124-127, 174-175	
SIM 49-70, 80-123, 130-173, 176-345	85 H/10
QUI 14-15, 19-25	
SIM 1-48	85 H/15
BETH 1-26	
TOR 1-9	
SAX 1, 4-28	
VES 1-4	
G 41-55, 59-73	
REF 1-39	85 H/16
BAH 1-14	
NON 1-20	
QUE 1-4	
SAX 2-3	
SIM 23-32	

Representative Tag numbers for these claims are as follows:

BAH	A12926, T84300	REF	A12931-A12969
BETH	A12415	SAX	A12971
G	A7141	SIM	A12101-A12445
NON	A12481-A12500	TOR	A11085
QUE	A83887, A89604	VES	A11092
QUI	A12901-A12925		

Location and Access:

The Simpson Islands are located 90 miles southeast of Yellowknife in the East Arm of Great Slave Lake. The property may be reached from Yellowknife or Hay River by winter road, by barge during the summer and by bush planes throughout the year.

History:

Uranium was discovered on North Simpson Island in 1969 by Edward Jones who staked 33 claims to cover his showings. This group, along with three adjacent claims staked by R. Gauchie, were acquired by the Pinetree Syndicate of Fort Smith, N.W.T. who later sold them to Vestor. An area underlain by the Sosan Group on North and South Simpson Islands, and the northern part of Preble Island was covered by 520 claims in 1969 and by additional claims staked in 1970.

Description:

Proterozoic sediments in the East Arm are preserved in a graben along the MacDonald Fault system which trends north-east along the southern margin of the Aphebian age Sosan Group sediments. Uranium mineralization is confined to the Hornby Channel Formation, the lowermost member of the Sosan Group. This formation is a 3,000 to 5,000-foot thick sequence of quartz arenites and conglomerates which unconformably overlies granitic and gneissic basement rocks (see table II, P. 32).

Most showings are located within 500 feet of the base of the Hornby Channel Formation, close to the basement contact and within quartz conglomeratic sandstone.

Uranium mineralization is found in high and low grade forms. High grade uranium occurs in unleached, grey to black conglomeratic sandstone in the form of interstitial uraninite or pitchblende associated with euhedral, interstitial pyrite and chalcopyrite. Samples average 1.3% U_3O_8 (chemical) with trace amounts of copper, nickel and silver. The more prevalent low grade

material is leached and hematite stained conglomeratic sandstone containing secondary uranium minerals concentrated along fractures and in the sericitic-silica cementing material. U_3O_8 content varies from 0.01% to 0.1%. Secondary uranium minerals identified by X-ray diffraction include soddyite, bequerelite, cuproclodowskite and liebigite. Trace amounts of gold may be present in both high and low grade mineralization.

Current Work and Results:

Prospecting, radiometric surveys, bedrock trenching, extensive geological mapping, sampling and laboratory studies were carried out during 1969, 1970, and 1971. Ten zones of anomalous radioactivity and a large number of showings have been located. Trenches have been blasted in all zones and a bulk sample of 550 pounds was taken. During 1971, 8,800 feet of drilling was completed in 42 holes. Of this, 16 holes were collared in Zone 5 for a total of 4,800 feet, and the remaining footage on zones 1,2,3,5 west, 6 and 7.

Zone 1 (61°45'49"N, 112°38'35"W) consists of anomalous radioactivity over an 80-foot width within quartz pebble conglomerate that strikes into a lake. Pitchblende, liebigite, chalcocite, chalcopyrite and covellite have been identified as fracture fillings. Grab samples contained 0.011% U_3O_8 to 1.98% U_3O_8 and a maximum of 0.62 oz/ton Ag and 0.2 oz/ton Au. The bulk sample from this zone contained: 0.12% U_3O_8 , 0.03 oz/ton Au and 0.18 oz/ton Ag. Drilling in this zone intersected 105 feet containing: 0.01% U_3O_8 to 0.10% U_3O_8 and averaging 0.045% U_3O_8 over four feet and 0.11% U_3O_8 over 28.5 feet.

Zone 5 (61°47'N, 112°31'W) is continuous along strike for over 1,000 feet and has an apparent width of 400 feet. Grab samples contained: from 0.006% U_3O_8 to 4.7% U_3O_8 , 0.212% Cu, 0.37% Ni and 0.40 oz/ton Ag. About 4800 feet of diamond drilling was completed on these zones. Of 19 holes drilled, 12 yielded radioactive intersections. The best core intersection averaged: 0.57% U_3O_8 over five feet and 0.11% U_3O_8 over 39.7 feet. The second best intersection averaged: 0.43% U_3O_8 over four feet and 0.11% U_3O_8 over 28.5 feet.

Zones 2,3,4, and 5 west, 6,7,8,9 and 10 contained relatively minor concentrations of uranium. Limited and generally shallow diamond drilling yielded a number of uranium bearing intersections, but none of economic significance.

During the summer of 1972, Mokta (Canada) Limited had a geological crew working in the Simpson Island area on Vestor's

properties. Reconnaissance geology was completed over an area bordered by Wilson Island to the west, Et-Then Island to the east, and from the north shore to the south shore of the East Arm of Great Slave Lake. The geology of Simpson Island was covered in detail and the main uraniferous zones near base lines 1 and 2 were mapped at a scale of 1 inch to 200 feet. A uranium soil geochemistry program was completed over much of the property with the sample site density increased on Zones 1 to 8. A detailed radon survey was conducted over Zone 5.

The geological and geochemical surveys delineated previously known anomalous zones along with a few new isolated showings.

PART IV WILSON ISLAND

RIP and OFF CLAIMS

Vestor Explorations Limited
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

85 H/16

References:

Bell (1902); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969); Lausen (1929); Rutherford (1929); Stockwell (1932, 1936); Stockwell et al. (1968); Wright (1951, 1952)

Property:

RIP 1-10 A48711-80
OFF 1-4 A48783-86

Location and Access:

The RIP and OFF claims are located on the south shore of the northeast end of Simpson Island. Access from Yellowknife (approximately 80 miles to the northwest) is by float- or ski-equipped plane, or by boat.

History:

The ten RIP and four OFF claims were staked by Warren E. Simpson in August, 1971. No assessment work had been done before the summer of 1972.

Description:

The claims cover part of a southeast-plunging micro-basin of Union Island Formation and Hornby Channel Formation units unconformably overlying the metamorphic basement complex to the northeast and in fault-contact with the complex to the northwest. The northeastern part of the structure consists of dolomite and dolomitic silts of the Hornby Channel Formation while to the southwest the middle and upper quartzitic members of the Hornby Channel Formation outcrop. A number of faults trend northwest across the structure. Quartz and uranium minerals occur as filling within the fault zones.

Current Work and Results:

In 1972, a detailed stratigraphic study of the basin was completed, as was scintillometer prospecting and limited silt sampling. This prospecting outlined fifteen uranium showings. Five northwest-trending fractures, lying perpendicular to a longitudinal fault separating members of the Hornby Channel Formation on the RIP claims contain uranium. One zone five centimeters wide, assayed: 24% U_3O_8 and 5.5 oz/ton Ag. On the OFF claims seven quartz-filled fractures, enriched with uranium, trend northwest in dolomite of the Hornby Channel Formation. Three other showings were located in a minor sandstone interbed, on the OFF claims, where uranium occurs as cement. The sandstone interbed dips at 40° to 45° southeast. The quartz-filled fractures possibly are a stockwell developed along the axial zone of a minor syncline in the beds of the Hornby Channel Formation.

EASTER GROUP

Five Star Petroleum & Mines Ltd.
9918 - 109th Street,
Edmonton, Alberta.

Ag, Ni, Co
85 H/10
 $61^\circ 44' N$, $112^\circ 52' W$

References:

Brown (1950c); Douglas (1959); Hoffman (1968); Reinhardt (1969); Stockwell (1936)

Property:

EASTER 1-3 72964-66
EASTER 4-15 73717-28

Location and Access:

The claims are located on the northern shore of Easter Island, one of the Simpson Islands, in Great Slave Lake, approximately 70 miles southeast of Yellowknife. Ready access by boat, float- or ski-equipped aircraft is possible most of the year.

History:

The claims were staked in April 1952 by Frank Morrison. The property was first trenched by North Goldcrest Mines Ltd. in 1953 and 15 holes, totalling 1,568 feet in were drilled in 1961 and 1962.

Five Star Petroleum and Mines Ltd. acquired the property in April, 1971, and now hold a 21 year mining lease that is valid until May, 1992.

Description:

C.H. Stockwell (1931) described the underlying rocks in the claim area as Archean sedimentary gneiss and granitic rocks.

Silver, niccolite, pyrite, pyrrhotite, and undetermined cobalt minerals occur in a quartz-carbonate gangue in fractures along the contact of a 100 to 200 foot wide gabbroic dyke with granite gneiss.

Current Work and Results:

During 1971 at least 3 holes totalling 2000 feet in length were drilled to further explore the nickel-silver showing along the contact of a differentiated mafic dyke.

VAN GROUP
Claymore Resources Ltd.
1830 - 1 Bentall Centre,
P.O. Box 49057,
Vancouver, B.C.
V7X 1G1

U
85 H/15
61°48'30"N, 112°48'W

References:

Bell (1902); Brown (1950a, 1950b, 1950c); Hoffman (1968, 1969);
Lausen (1929); Rutherford (1929); Stockwell (1932, 1936);
Stockwell et al. (1968); Wright (1951, 1952)

Property:

VAN 1-26 T69315 and A13500

Location and Access:

This claim group covers Wilson Island and Cahp Island within the East Arm of Great Slave Lake, 90 miles southeast of Yellowknife and 130 miles northeast of Hay River. The property may be reached from Yellowknife and Hay River during the summer by boat, during the winter by winter road and at most times of the year by bush plane. (see Map 2, P. 36)

History:

These claims were staked to cover Sosan Group orthoquartzites and sandstones considered favourable for uranium occurrences.

Description:

Archean igneous rocks are exposed on the southwestern tip of the claim group on North Simpson Island. Just to the north on Cahp Island light coloured subarkose and orthoquartzite are overlain by darker red-brown micaceous sandstone of the Hornby Channel Formation. Just to the west of Cahp Island on the southern side of Wilson Island these sediments are folded into a northeasterly trending syncline. On the northern edge of the claim area the Sosan Group is overlain by Murky Channel Formation conglomerate of the Et-then Group.

Current Work and Results:

A geological map and a detailed scintillometer survey of Wilson and Cahp Islands were completed and three anomalous radioactive zones were found on Cahp Island, the largest

measures 300 feet by 10 feet. The anomalies were trenched and grab samples from these assayed 0.015% U_3O_8 to 1.74% U_3O_8 with a maximum of 3.66 oz/ton silver. Background scintillometer readings are persistantly lower and no anomalous radioactive zones were delineated on Wilson Island.

PINE POINT AREA

(Interior Plains)

TC GROUP

Pine Point Mines Limited

Pine Point, N.W.T.

85 A/13

60°57'N, 113°55'W

References:

Hornal et al. (1974); Norris (1965); Schiller (1965); Thorpe (1966)

Property:

TC 1-100 A31201-300

TC 101-145 A31101-45

Location and Access:

The claim area is approximately 17 miles east of the village of Pine Point just south of Great Slave Lake. Highway No. 6 from Pine Point to Fort Resolution crosses the claims.

History:

TC claims 1 to 100 were staked in June 1972 by W.R. Hargrave, A.H. Thomas and N. Schram. The remaining 45 TC claims were staked by A.H. Thomas, A.I. Osing and P.J. Santos in June 1972.

Description:

The claim group is underlain by limestone, dolomite, shale and evaporite of Middle Devonian age.

Current Work and Results:

In January, 1973, nine holes totalling 2,183 feet were drilled to check weak anomalous zones found by an induced polarization survey. The nine holes did not encounter significant amounts of mineralization and only one was sampled. Rock from hole 2455 on claim TC 62 assayed: PB a trace, Zn 0.1%, Fe 0.4% (between 210 feet and 218 feet).

TAN and DE CLAIMS

Pine Point Mines Limited
Pine Point, N.W.T.

85 B/15
60°50'N, 114°30'W

References:

Hornal et al. (1974); Norris (1965); Schiller (1965); Thorpe (1966)

Property:

DE 1-12	A31061-72
TAN 1-57	N56844-6900
TAN 58-111	T98601-54
TAN 112-120	A5725-33

Location and Access:

The claim area is approximately 5 miles southwest of the village of Pine Point and 11 miles south of Great Slave Lake. Highway No. 6 is 1 mile north of the property.

History:

TAN 1 to TAN 57 claims were staked in May 1969 by M.B. Bapty and A.H. Thomas; TAN 58 to TAN 111 were staked by G.R. Dumas, T.D. Lee and A.H. Thomas in May, 1969; TAN 112 to TAN 120 were staked in May, 1969, by G.R. Dumas and the 12 DE claims were staked in December, 1971, by N. Schram.

In March, 1970, four holes, totalling 2,411 feet, were drilled on the TAN property but no samples were taken because mineralization was insignificant.

Description:

The claim group is underlain by limestone, dolomite, evaporite and shale of Middle Devonian age.

Current Work and Results:

An additional hole (the fifth) was drilled to a depth of 185 feet on the TAN claims in March, 1971, but no significant mineralization was intersected. In March, 1972, two more holes were drilled for a total of 534 feet on the TAN property and again no significant mineralization was intersected.

One hole was drilled on the DE claims in February, 1972, to a depth of 386 feet. No significant mineralization was reported.

AQ GROUP
Quantus Exploration Limited
1264 West Pender Street,
Vancouver 1, B.C.

Zn, Pb
85 B/15
60°55'N, 114°45'W

Reference:

Norris (1965)

Property:

AQ 1-36 T47201-36

Location and Access:

The AQ group straddles the shore of Great Slave Lake midway between Sulphur and Presqu'ile Points in the Breynant Point area (85 B/15). The claims are most easily reached along cut lines leading north from the Pine Point Highway.

History:

The AQ group was staked in February of 1968 and an airborne EM survey was conducted over the property shortly thereafter.

Description:

The area has gentle relief and rises to a maximum of 150 feet above lake level. Drainage is poor and the claims are covered mainly by a succession of swamps, muskeg and stunted timber with underlying sand, gravel and glacial till. Outcrops are scarce in the region but do occur along the shore of Great Slave Lake at Sulphur and Presqu'ile Points. It is unlikely that there are any outcrops on the claim group.

Current Work and Results:

Airborne magnetometer, radiometric and EM surveys were conducted along meridional lines spaced 500 feet apart. Total magnetic variation was 900 gammas. One magnetic anomaly considered to reflect the presence of an anticline in the dolomitic rocks was found.

Only two EM anomalies were recorded, one a high of 0.8 microamps is coincident with the magnetic high at the southeast corner of AW 18 mineral claim. The second corresponds with the lake shore and is considered to be due to a shear zone that lies parallel to the shore. A radioactive area measuring

1000 by 500 feet corresponds with the coincident EM and magnetic anomalies.

ROC, WET and PAT GROUPS

Conwest Exploration Company Limited 85 B/15
10th Floor, 85 Richmond Street West, 60°50'N, 114°45'W
Toronto, Ontario.

References:

Hornal et al. (1974); Norris (1965); Schiller (1965); Thorpe (1966)

Property:

ROC 25-100 N20625
WET 1-2 T29611-12
PAT 1-2, 8-10, 13-16, 19-20 T67908

Location and Access:

This claim group is situated about 10 miles west-northwest of the village of Pine Point. They adjoin the XX and WW claims of Pine Point Mines Limited, which lie to the south. A bush road provides winter access to the property but in the summer tracked vehicles are required.

History:

Geophysical surveys were conducted over parts of the ROC group by Yellowknife Base Metals Limited in 1967, and by New Park Mining Company in 1967.

Description:

There is little or no rock outcrop in this mainly muskeg and spruce forested area.

Current Work and Results:

Approximately 32 miles of multi-separation method IP survey was conducted over the property during the period February to April 1972. Three weakly anomalous zones were indicated. Two are new and one was discovered by a previous IP survey. It was tested by both gravity and drilling but no mineralization was reported.

JAKE, TIP and IQ GROUPS

Conwest Exploration Company Limited 85 B/16
10th Floor, 85 Richmond Street West, 60°53'N, 114°08'W
Toronto, Ontario.

References:

Belyea (1971); Douglas (1959); Lord (1951); Norris (1965);
Sangster (1968)

Property:

JAKE 1,2,9,10,16,17,24,25,30,31 N68238
TIP 1,2,8-10,16-18,24-27,33-34 N69101
IQ 18,19,28-47,49-51 N74328

Location and Access:

These claims are located approximately 12 miles south of Dawson Landing on the southern shore of Great Slave Lake. Access to the claims is by float- or ski-equipped aircraft and winter road.

History:

The 36 JAKE and 51 TIP claims were staked for H.L. Hill in November, 1965. In February, 1966, the IQ claims were staked by C.M. Kilbreath. All of the claims were transferred to Croydon Mines Limited in November, 1966. During November 1966 and March, 1967, IP surveys were run over the property but no significant results were forthcoming. An agreement was made with Gold Fields Exploration Canada Limited and Conwest Exploration Company Limited who carried out further IP work in 1972. Approximately half of the 51 TIP and 36 JAKE claims have lapsed. The remainder together with the IQ claims are still in good standing.

Description:

The claims are underlain by a mid-Devonian gypsum, limestone and dolomite unit of the Presqu'ile and Pine Point Formations. In the Pine Point area, ore deposits of galena and sphalerite are found in the flat-lying dolomitic rocks of the Presqu'ile Formation. The mineralized belt extends for 22 miles and is 2 to 4 miles wide.

Current Work and Results:

A more detailed Time Domain IP survey was conducted in 1971, with 200-foot reading intervals, as compared to stations every 400 feet in 1966-67. The lines were approximately 500 feet apart and ran north-south.

Absence of anomalies is interpreted as indicating absence of any small or medium sized orebody near the surface, or of a large orebody at depths of 400 to 600 feet.

An extensive IP survey was done during the summer of 1972 on the JAKE, TIP and IQ claims to locate anomalous zones which might contain mineralization similar to that found on the Pine Point Mines property but anomalies were not found.

KK GROUP

Conwest Exploration Company Limited	85 B/16
85 Richmond Street West,	60°57'N, 114°05'W
Toronto, Ontario.	

References:

Hornal et al. (1974); Norris (1965); Schiller (1965); Thorpe (1966)

Property:

KK 1-8 T46141-8

Location and Access:

The claim group lies about 15 miles northeast of the town of Pine Point on the south shore of Great Slave Lake. A new highway from Pine Point to Fort Resolution passes within a few hundred feet of the claim group. Railway transportation to the south is also in close proximity.

History:

The 8 KK claims were staked in February, 1968, by G. Hill for Territory Mining Limited to cover ground potentially favourable for lead-zinc deposits similar to those discovered by Pine Point Mines. Sometime in early 1968 an EM survey and 1300 feet of diamond drilling was done but there is no record of the results. In September, 1972, the claims were transferred to Conwest Exploration Company Limited.

Description:

The KK claims are underlain by Middle Devonian rocks composed mainly of limestone, dolomite, and shale. Mineralization, in the form of galena, sphalerite, and minor amounts of marcasite, native sulphur, and bitumen in the Pine Point area is confined mainly to coarse-grained vuggy dolomite.

Current Work and Results:

Approximately 55 line-miles of IP surveys were conducted on the property to aid in the search for mineralized zones similar to those being mined on the Pine Point property.

A broad weak anomaly detected on the eastern boundary of the claim group has a source covering the southern half of KK 1 and a southeast portion of KK 2. Seven drill targets have been outlined.

AD GROUP	Zn
Pine Point Mines Limited	85 B/16
Pine Point, N.W.T.	65°55'N, 114°02'W

References:

Hornal et al. (1974); Norris (1965); Schiller (1965); Thorpe (1966)

Property:

AD 1-54 N67001-54

Location and Access:

The AD claims are located approximately two miles south of Paulette Island, on Great Slave Lake, 14 miles northwest of the village of Pine Point and one mile south of Highway No. 6 from Pine Point to Fort Resolution.

History:

These claims were staked in August, 1965, for Pine Point Mines Limited. Three holes totalling 606 feet were drilled on the group in June, 1970. Minor amounts of bitumen and marcasite and some sphalerite were encountered.

Description:

As there is no exposure in the area the following description is based on drill results.

Overburden varies in thickness between 10 feet and 30 feet and dolomite is found at a depth of about 160 feet. Two layers of shale, approximately three feet thick, separate a ten-foot-thick layer of dolomite from the rest of the unit.

Current Work and Results:

Small drill programs were conducted on these claims in 1971 and 1972. Minor amounts of lead and zinc sulphides were found, (mostly traces) in two holes.

PINE POINT MINE PROPERTY	Pb, Zn
Pine Point Mines Limited	85 B/16
Pine Point, N.W.T.	60°50'N, 114°25'W

References:

Lord (1951); Norris (1965); Schiller (1965); Schiller and Hornbrook (1964); Skall (1972); Thorpe (1966)

Property:

Pine Point Mines Limited hold 4,043 claims (end of 1972) in an area over 33 miles long and several miles wide on the south shore of Great Slave Lake.

Location and Access:

Access to the property, on the south shore of Great Slave Lake, is provided by an all weather 60-mile highway from Hay River and by a spur line from the Great Slave Railway.

History:

The property was first staked in 1898 by gold prospectors trying to reach the Klondike but was allowed to lapse because no precious metals were found. Activity picked up again in the 1920's and in 1928 Cominco Limited joined the exploration through the Northern Lead Zinc Company which was organized to assess these deposits. Transportation difficulties led to a discontinuance of the work but as a result of further investigation, Cominco Ltd. and Ventures Limited, acquired an exploration

concession covering approximately 500 square miles and discovery of a large mineralized belt resulted in the incorporation of Pine Point Mines Limited in May, 1951. Exploration work done to 1954 indicated about 5,000,000 tons grading 4% lead and 7% zinc.

Extensive diamond drilling and EM survey work was carried out in 1962 and 1963. IP survey work began in 1963 and continued intermittently for approximately seven years. Preparation of the ore bodies for open-pit operations began early in 1964 and by November the first shipments of high grade ore were made.

A 5,000 tons per day concentrator installed late in 1965 was increased to 8,000 tons per day by 1968 to handle ore from the Pyramid ore body from which production began in 1969. Initially all concentrates were sent by rail to the Cominco Ltd. smelter in Trail, B.C. Some concentrates have since been sent to the United States, Japan, India, Europe and South Africa.

Underground operations began on the M-40 ore body late in 1970.

Exploration drilling has been more or less continuous throughout the property since 1963. Ore reserves at the end of 1972 were 40.9 million tons.

Description:

In the Pine Point area the Precambrian basement complex is overlain by 1,000 feet of gently dipping Middle Devonian limestone, dolomite and shale. Overlying these are the Barrier sediments of the Pine Point Group which occupy a stratigraphic interval of 400 feet to 550 feet (Skall 1972).

The lithology of the Pine Point Group includes fine, dense, sandy-textured dolomite, coarse crystalline dolomite (Presqu'ile) and limestone. The fine crystalline dolomite occurs in the lower part of the Barrier sediments and above this lies the coarse, crystalline, Presqu'ile dolomite, and lateral time-equivalent limestone beds. The most characteristic features of the Presqu'ile are its coarse crystalline nature and numerous vugs. The vugs make up about 15% of the Presqu'ile and are locally lined or filled with bitumen, sulphur and metallic sulphides.

The Presqu'ile dolomite is host for most of the Pine Point ore bodies and these occur in an area roughly 22 miles long and 2 to 4 miles wide. Many of the Pine Point ore bodies

are irregular tabular deposits with horizontal dimensions of several hundred feet and thicknesses up to 100 feet. Some smaller ore bodies are prismatic in shape, having a lesser horizontal and greater vertical extent.

Current Work and Results:

Plans to reopen the underground workings on the M-40 ore body, shut down in March, 1971, after 4 months operations, were made in late 1972. A continuous miner has been adapted to work on this ore body.

Two Coronet ore bodies which are known to contain one million tons of 10.4% combined lead-zinc were purchased by Pine Point Mines in June, 1972. They help to hold ore reserves at about 41 million tons averaging 2.4% Pb and 6% Zn.

TABLE IV
Production Summary Pine Point Mines

Year	Grade		Production		Average Daily Payroll	Tons Milled
	Lead %	Zinc %	Lead lbs	Zinc lbs		
1971	2.6	6.5	202,384,000	505,960,000	504	3,892,000
1972	2.7	6.2	205,725,360	472,406,396	524	3,809,729

SLAVE PROVINCE

(Central Mackenzie District)

IND and MTN CLAIMS

Cominco Ltd.

200 Granville Square,
Vancouver, B.C.

75 M/2

63°05'N, 110°53'W
and 63°10'N, 110°54'W

References:

Henderson (1941); Heywood (1963); Heywood and Davidson (1969)

Property:

MTN 1-42 T96630-71
IND 1-10 T96672-82

Location and Access:

The IND and MTN claims are located in the Brisbane Lake area approximately 120 miles northeast of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The 52 IND and MTN claims were staked for Cominco Ltd. in January, 1971, to cover ground adjacent to the Indian Mountain Lake sulphide deposit. No assessment work was submitted to the mining recorder in Yellowknife and the claims lapsed the following year.

Description:

The MTN and IND claims are underlain by Archean Yellowknife Supergroup metamorphosed supracrustal formations. The north-central portion of the MTN claims are underlain by dacite and quartz latite, the south portion by felsic agglomerates and breccias, and a small area on the western edge of the claims is underlain by massive and pillow basalts. The rocks on the IND claims include dacite, quartz latite and felsic agglomerate and breccia, except for a small section in the southwest corner which is underlain by massive and pillow basalt.

No mineral occurrences have been reported on these claims.

Current Work and Results:

Cominco Ltd. conducted a general geological assessment of the IND and MTN groups during 1971. This study was not reported as assessment and the claims lapsed in 1972.

OSW GROUP	Cu, Zn
Shield Resources Limited	75 M/2
9305, 169th Street,	63°03'N, 110°45'W
Edmonton, Alberta.	

References:

Fortier (1947); Henderson (1941, 1944); Heywood and Davidson (1969)

Property:

OSW 1-4 A30971-73

Location and Access:

The claims are located in the Susu Lake area, approximately 110 miles northeast of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The OSW claims were staked by Walter J. Humphries on April 28, 1971 to cover an area of copper mineralization.

Description:

The OSW claims are underlain by rocks of the Archean Yellowknife Supergroup. On the eastern portion of the claims are rocks which are described as greywacke, impure quartzite and slaty argillite, with minor calcareous greywacke, graphitic slate, and biotite spotted phyllite (Heywood and Davidson 1969). Fine-grained quartz-feldspar-biotite granulites underlie the western half of the area. A number of pyrite occurrences are mapped in the claim area.

Current Work and Results:

One hole was drilled to a depth of 300 feet in April 1972 to check on a zone of massive sulphides. Massive pyrrhotite with minor pyrite, sphalerite, and chalcopyrite were intersected over a two foot interval (179.8 to 182.0 feet).

VOO GROUP	Cu, Ag
Indian Mountain Metal Mines Limited	75 M/2
1601, 8 King Street East,	63°02'N, 110°58'W
Toronto, Ontario.	

References:

Fraser (1964); Heywood and Davidson (1969); Johnson (1972); Shegelski and Thorpe (1972); Thorpe (1972a and 1972b)

Property:

VOO 1-7 A38102-8

Location and Access:

The property is located on BB Lake, 2 miles southeast of Indian Mountain Lake, 110 miles northeast of Yellowknife. Access is by float- or ski-equipped aircraft, but as the claims lie only 10 miles north of the East Arm of Great Slave Lake, they can be readily approached from the lake.

History:

All of the ground presently staked as the VOO claims was covered in 1951 by another set of VOO claims (1 to 21 72724-45) which were staked by James McAvoy to cover the area immediately to the west of copper-zinc occurrences. Six holes, totalling 2987 feet, were drilled in 1952, but the logs cannot be located. Further assessment work in 1959 consisted of 20 cubic yards of trenching and 757 feet of diamond drilling in 10 holes. Although logs are available for these holes, no assays were made. Holes #2 to 6 and 8 to 10 intersected varying amounts of pyrite, pyrrhotite, or chalcopyrite.

One hundred and forty-two cubic yards of trenches were excavated in 1962, but no write-up or sketches are available.

In July, August and December of 1966, nine holes were drilled; one located on VOO 13 (now VOO 3), one on VOO 18 (now VOO 4 and 5) and the other seven on the southwest shore of Kennedy Lake on VOO 21 (now VOO 5). On VOO 21, drilling intersected the westward extension of the Kennedy Lake copper zone; the best hole close to the eastern boundary yielded core that contained 1.48% Cu across 47 feet or 0.85% Cu across 114 feet. The claims subsequently lapsed.

In May 1972 K.J. McDonald staked part of the old claim area as the seven VOO claims (A38102-8) and later that month transferred them to Indian Mountain Metal Mines Limited.

Description:

The southeast portion of the claim group is underlain by 1100 feet of mafic volcanics which are considerably sheared parallel to the foliation; they contain minor disseminated pyrite and chalcopyrite. These rocks are metamorphosed in varying degrees and are now hornblende-plagioclase-garnet-biotite gneiss or chlorite-biotite-quartz schist and gneiss.

A 200-foot thick section of felsic pyroclastics and flows separates the mafic volcanics from a thick section of felsic volcanics, predominantly rhyolite or dacite which except for a small section of sedimentary rocks in the northeast corner underlie the remainder of the claim area. The sedimentary rocks include greywacke-argillite with graded bedding.

The mineralized zone which outcrops in chlorite-garnet schist on the southwestern shore of Kennedy Lake extends into the lake. The zones of shearing, disseminated sulphides, and chlorite-garnet schists can be traced from Kennedy Lake to BB Lake and probably represent a metamorphosed alteration pipe related to disseminated sulphides in the overlying felsic volcanics (Shegelski and Thorpe, 1972).

Current Work and Results:

In September 1972, rock trenching, line-cutting, geological mapping, and a ground EM survey were conducted on the VOO property to assess its economic potential as a copper deposit.

Three trenches, totalling 112 cubic yards, were excavated and channel samples were assayed for copper, gold, silver, lead, zinc, and nickel. Only the silver and copper content of these samples were significant with silver averaging about 0.94 oz/ton and copper 0.5% over a 25-foot width.

The EM survey was run along lines spaced at 200-foot intervals with readings taken every 100 feet. No conductors that could be associated with massive sulphide deposits were encountered.

NUT and TIP CLAIMS
Sturdy Mines Limited (50%)
Talisman Mines Limited (50%)
Box 67,
Toronto-Dominion Centre,
Toronto, Ontario.

Au, Ag, Cu
75 M/5
63°23'N, 113°35'W

References:

Henderson (1941); Lord (1941, 1951)

Property:

NUT 1-2 A10391-2
TIP 1-20 A18305-24

Location and Access:

These four claims are located on the west side of the Lac Du Rocher area, approximately 90 miles northeast of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The TIP 1-20 and NUT 1 and 2 claims were staked in 1970. Sturdy Mines Limited and Talisman Mines Limited optioned a joint 90% interest in the property from Charles Vaydik. By an agreement in February 1971, Niseka Mining Limited, Excalibur Mining Limited and Metron Exploration Limited agreed to finance the initial exploration program.

In 1970, a ground magnetic and EM survey located a 2,000-foot long by 150-foot wide magnetic anomaly with weak coincident EM conductors. A quartz vein is nearby and approximately 6,000 feet south, and a second anomaly measuring 1,000 feet long by 100 feet wide lies within a zone of faulting.

Description:

The claims are underlain by sediments and lavas of the Archean Yellowknife Group. A major fault striking 030° is close, and parallel to, the sediment-lava contact. About 100 feet east of the fault a gold-bearing quartz vein has been trenced for a length of 145 feet. Assays of channel samples taken along a 141-foot length are reported to have averaged: 3.36 ounces of silver and 0.44 ounces of gold a ton across an average width of 3.4 feet.

Fine gold was observed in this vein: it's dip ranges from 80°E to vertical and it varies from 2 to 5 feet in width. Prospectors have reported a gossan containing chalcopyrite on the east side of the fault, in a fault depression near the gold-bearing quartz vein.

On the east wall of the fault, approximately one mile north of the showings, a sulphide gossan containing pyrite, and arsenopyrite assayed up to 0.5 oz/ton Au.

Current Work and Results:

In March and April 1971, seven diamond drill holes, totalling 1633 feet, cut the main gold vein along a strike length of 240 feet. Samples assayed from 0.40 to 1.36 oz/ton Au over narrow vein widths. One section of core assayed: 0.44 oz/ton Au across a true width of 4.0 feet, and a second assayed: 0.33 oz/ton Au across 6.1 feet. Hole No. 2, which was continued past the gold-bearing vein into the magnetic and EM anomaly, encountered negligible copper values.

JOE and PEP CLAIMS

Anglo United Development Company Limited	75 M/5,11
2602 Royal Trust Tower,	63°35'N, 111°05'W
Toronto-Dominion Centre,	
Toronto, Ontario.	

References:

Folinsbee and Moore (1950); Heywood and Davidson (1969); Lord (1941, 1942, 1951)

Property:

JOE 1-22	A46415-36
JOE 23-44	A46585-606
PEP 1-20	A46460-79

Location and Access:

The JOE and PEP claim groups comprise an area of approximately three square miles. The claims are situated at the tree line 105 miles northeast of Yellowknife and about 65 miles north of the East Arm of Great Slave Lake. At present the area is accessible only by float- or ski-equipped aircraft.

History:

The claims were staked in 1970 by Anglo United Development Company Limited to cover ground which contains a number of EM conductors that were outlined by a survey in 1966.

Description:

Well exposed, slightly metamorphosed Yellowknife Supergroup volcanics are the chief rock type of the map area. A prominent northeast trending gabbroic, diorite dyke system cuts across the map area.

Minor chalcopyrite and pyrite mineralization was found in one diorite dyke that cuts through an outcrop of gabbro in the centre of the property.

Current Work and Results:

A ground EM and magnetometer survey was conducted on the PEP claims in June and July of 1971. The Albert zone is the best in the survey area. It was checked by 3 diamond drill holes aggregating 543 feet, in September 1971. Pyrite, pyrrhotite, and minor chalcopyrite were noted in two zones. The best assay results were: 0.27% Cu, 0.22% Zn, trace of Ni, and 0.01 oz Au/ton over 3 feet.

Anomalous zones outlined on the JOE claims during an EM and magnetometer survey in 1971 are likely to be narrow and contain some sulphides (suggested by the magnetic field).

A geochemical soil sampling program carried out in August, 1971, over conductors located on the JOE group outlined corresponding weak copper-zinc anomalies. A geological study was made at the same time as the geochemical survey.

The main EM conductivity appears to be caused by graphite, pyrrhotite, and small amounts of chalcopyrite within a "shear" zone in the dacite unit. Assays of pit samples from this zone give returns of less than 1% copper and zinc.

VICTORY LAKE PROJECT
Yellowknife Syndicate
The Yellowknife Syndicate is
owned equally by:

Cu, Ag
75 M/12; 85 P/9
63°30'N, 112°00'W

Yellowknife Bear Mines Limited
1005 - 360 Bay Street,
Toronto, Ontario.

Hydra Explorations Limited
1600, 100 Adelaide Street West,
Toronto, Ontario.

Long Lac Mineral Explorations Ltd.
500, 112 King Street West,
Toronto, Ontario.

Keevil Mining Group Limited
Suite 4900,
Toronto-Dominion Centre,
Toronto, Ontario.

References:

Blackadar (1969); Folinsbee (1950); Fortier (1946); Henderson (1941); Jolliffe (1936, 1944); Miller (1949); Moore et al. (1951); Tremblay (1950)

Property:

PIL 1-18 A48161-78
PIL 19 A34474
RAT 1-60 A48101-60

OAR 1-4 A48179-82
QUO 1-4 A48183-86

Location and Access:

The claim area is located about 3 miles northeast of Beniah Lake. Access from Yellowknife, which is approximately 95 miles to the southwest, is by float- or ski-equipped aircraft.

History:

Most of the claims were staked in November 1970 to cover airborne EM anomalies disclosed by a 1970 aerial survey with Dighem equipment. PIL #19 was staked in September 1971. A.F.M. Reid owns all of these claims in the name of the Yellowknife Syndicate.

Description:

The claim groups are underlain by Archean rocks of the Yellowknife Supergroup, consisting of mafic lavas, minor pyroclastic beds, minor felsic lavas, chlorite schist, and amphibolite (Moore et al. 1951).

Current Work and Results:

Diamond drilling was carried out during the spring of 1971 to explore 9 of the conductors. One anomaly was to be checked by collecting soil samples but this survey was not completed.

Nine holes, totalling 812 feet, were drilled and selected assays done for Cu, Ag, Zn, Au, and Ni. The highest assay values were as follows: Cu, 0.70% over 1 foot in hole NOT #1; Ag, 3.70 oz/ton over 5 feet in hole NOT #3; Zn, 0.35% over 6 feet in hole NOT #4; Au, 0.005 oz/ton over 1.5 feet in hole #3; and Ni, 0.03% over 2 feet in hole #1.

There are numerous conductors in the area but only those considered to offer the best base metal potential were drilled. Eight of the nine conductors were shown to result from barren sulphides and/or graphite. The ninth conductor ("B") is unexplained but the density and size of the outcrop severely limit the size potential of its source.

As a result of this work, the Victory Lake Project was terminated, and the claims allowed to lapse.

BAY GROUP
Cleaver Lake Mines Limited
2625 Landsdowne Road,
Victoria, B.C.

Cu
75 M/12
63°33'N, 111°57'W

References:

Henderson (1941, 1944); Lord (1941, 1951)

Property:

BAY 1-36 A19525

Location and Access:

The BAY claims are located approximately 110 miles northeast of Yellowknife in the southern part of the Warburton Bay area. Access to the property is by float or ski-equipped aircraft to Esker Lake, the nearest and largest lake which adjoins the property to the west.

History:

The BAY group was staked in September 1970 for Cleaver Lake Mines Limited.

Description:

The property covers part of a narrow belt of metamorphosed, sheared and folded volcanic rocks of basic to intermediate composition.

Mineralization is usually sparse to absent in the wall rocks but adjacent to mineralized shears, 0.5% disseminated pyrite and possibly pyrrhotite may be found as fine-grained particles.

Current Work and Results:

During the period May 10th to June 4th 1971 reconnaissance EM and geological surveys and detailed EM and magnetometer surveys were done on the BAY group of claims.

A series of parallel stratabound conductive zones trending 030° with good widths and strong conductivity ratios were mapped over a strike length of 11,500 feet. Magnetic response in some cases is due to magnetite; however, for the most part sulphide zones with moderate magnetic response are indicated.

In July, 1971, detailed geological mapping and a geochemical survey were carried out in the area of the electromagnetic conductors on the BAY claim group. The three main rock types found in the area, basalt, andesite, and tuffs have been folded and sheared and the shears carry sulphide and quartz with pyrite, pyrrhotite, chalcopyrite and possibly magnetite along joints and fracture planes. The major shears border the EM conductors or lie on the edges of swamps overlying conductors.

Four anomalies outlined by the geochemical survey coincided with magnetic and EM anomalies.

MAG and CON GROUPS
Central Arctic Copper Limited
534, 789 West Pender Street,
Vancouver, B.C.

Cu, Zn
76 C/9
64°45'N, 110°30'W

Reference:

Lord (1951)

Property:

MAG 1-36 T43701-36
CON 1-17 A47265-81

Location and Access:

The claim area is located 245 miles northeast of Yellowknife in the Muskox Lake area. Access is by float- or ski-equipped aircraft.

History:

The MAG claims were staked in September, 1969, by J. Magrum and transferred to Central Arctic Copper Limited in July, 1970. G. McKay staked the CON claims in September, 1970, and transferred them to Central Arctic Copper Limited in April 1971. A long continuous conductive zone was located during an EM and magnetometer survey conducted in July, 1970. Two holes were drilled in MAG 8 and 9, but no assays were made.

Description:

A belt of undifferentiated mafic volcanic rocks 8 miles long and 2 miles wide which outcrops immediately north of Muskox Lake is surrounded by larger areas of metasedimentary rocks. All are part of the Yellowknife Supergroup. Finely disseminated pyrite and pyrrhotite mineralization contains some chalcopyrite and sphalerite.

Current Work and Results:

In May and June, 1971, six holes, totalling 1,195 feet were drilled as a follow-up to reconnaissance work done earlier that year but some of the most conductive zones were not drilled.

C GROUP
Northair Mines Limited
1010, 789 West Pender Street,
Vancouver, B.C.

Cu
76 F/16
65°46'N, 108°08'W

References:

Fraser (1964); Shegelski and Thorpe (1972); Wright (1957)

Property:

C 1-4 A881-4
C 5 A18805-31
C 32-35 A18832-35
C 36 A885

Location and Access:

The 36 C claims are located in the Hackett River area (see Map 3, P. 71) approximately 300 miles northeast of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The C claims were staked by J. Arden in July, 1970, to cover an area adjacent to the Bathurst Norsemines property (Map 3) where massive sulphides containing sphalerite, galena and chalcopyrite have been located. In May 1971 the claims were transferred to Northair Mines Limited.

Description:

The area is underlain by a broad northwesterly trending belt of metamorphosed Archean sedimentary and volcanic rocks consisting mainly of greywacke, micaceous quartzite and schist.

Numerous large gossans that occur on siliceous zones in the metasediments are caused mainly by oxidation of sparse pyrite, pyrrhotite, and minor chalcopyrite.

The C claims cover a portion of a strong northwesterly trending linear that has a number of associated gossans.

Current Work and Results:

In June and July, 1971, 30.8 line miles of reconnaissance EM and magnetic surveys tested the ground for conductors. Four conductors were outlined but only two are considered significant. Conductor no. 2 could not be extended to the north because of

a lake and is weak and considered unimportant to the south. The third conductor has been traced for 1400 feet and has an average width of 30 feet. Because overburden covers both conductors, mineral content has not been determined. All four conductors trend parallel to a strong northwesterly trending linear which is assumed to be a fault.

FF and OP CLAIMS

New Cronin Babine Mines Limited
760, 890 West Pender Street,
Vancouver, B.C.

Cu

76 F/16

65°50'N, 108°15'W

Now Sproatt Silver Mines Ltd.
333, 85 Dunsmuir Street,
Vancouver 1, B.C.

References:

Fraser (1964); Shegelski and Thorpe (1972); Wright (1957)

Property:

FF 73-107 A30247-81
OP 144-170 A45658-93

Location and Access:

The FF and OP claims are located approximately 300 miles northeast of Yellowknife in the Hackett River area (see Map 3, P. 71). Access is by float- or ski-equipped aircraft.

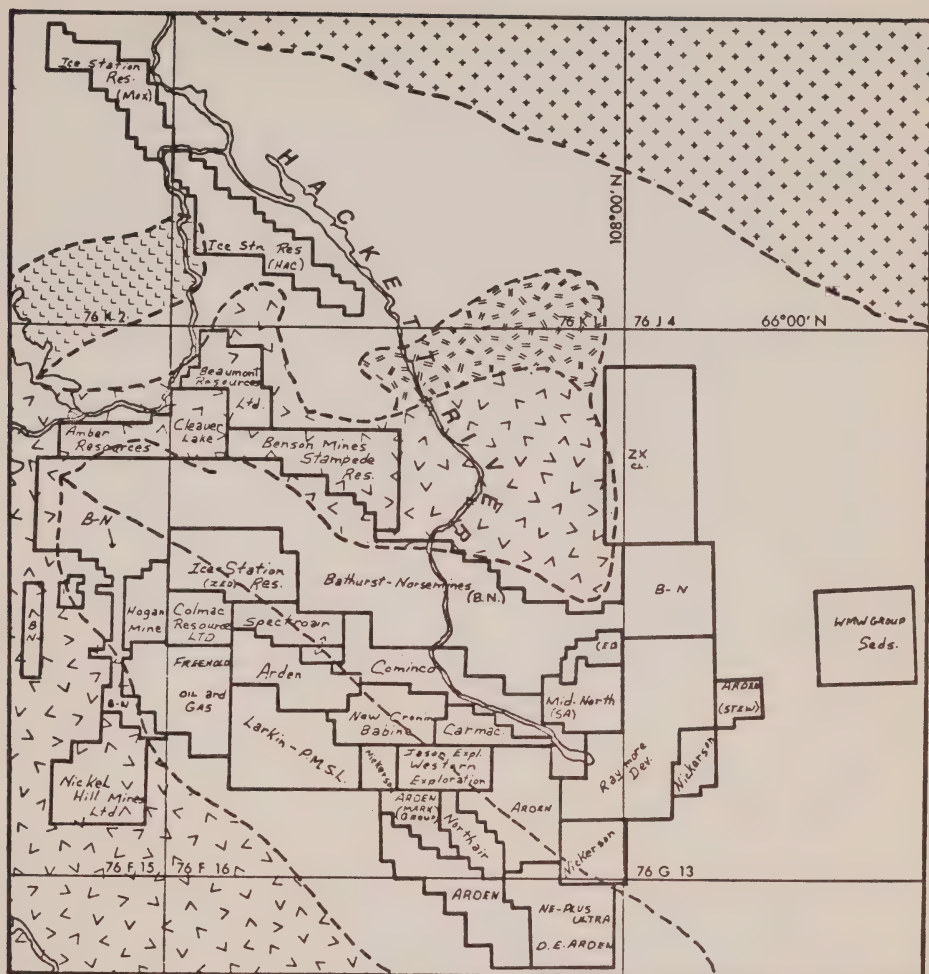
History:

These claims were staked by Wayne Magrum in April 1971 following the discovery of massive sulphides on the Bathurst Norsemynes property (Map 3). The claims were transferred to New Cronin Babine Mines Limited a few days later.

Description:

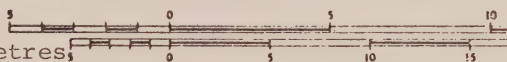
The area is underlain by a broad northwesterly trending belt of metamorphosed Archean supracrustal rocks consisting mainly of greywacke, micaceous quartzite or metarhyolite and schist.

A large number of sulphide gossans have formed on siliceous zones in the metasediments. Generally these were formed by oxidation of sparsely disseminated pyrite, pyrrhotite and minor chalcopyrite.

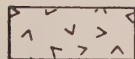


Map 3.
Property Location Map
Hackett River Area (1971).

Scale of Miles



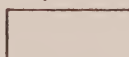
Quartzite



Granites and allied rocks,
locally including granite
gneiss and remnants of
supracrustal rocks.



Granitic gneiss



Supracrustal rocks,
dominantly sediments but
includes volcanic units.



Greenstones, altered mafic
volcanic rocks.

Geological contacts

The OP and FF claims cover a portion of the favourable metamorphic rock sequence. Several oxidized sulphide occurrences located on the west-central part of the property were found to contain massive pyrite in a siliceous matrix.

Current Work and Results:

A total of 31.5 line-miles of reconnaissance electromagnetic surveying was done in July, 1971, on the FF and OP claims to locate conductors. Two weak conductors were found: they are probably caused by graphite in fault zones. Several mineralized sulphide zones containing pyrite were sampled and assayed for silver. Assays are not available.

SUE CLAIMS

Cleaver Lake Mines Limited
2625 Landsdowne Road,
Victoria, B.C.

Cu
76 F/16
65°57'N, 108°28'W

References:

Fraser (1964); Shegelski and Thorpe (1970); Wright (1957)

Property:

SUE 1-36 A9191-226
SUE 37-48 T43737-48

Location and Access:

The 48 SUE claims are located in the Hackett River area 305 miles northeast of Yellowknife (see Map 3, P. 71. Access is by float- or ski-equipped aircraft.

History:

The SUE 1-36 claims were staked by Trevor Midley and Doug Jackson in September, 1968. At the same time Jim Magrum staked the SUE 37-48 claims. In April, 1971, the claims were transferred to Cleaver Lake Mines Limited.

Description:

The area is underlain by a broad northwesterly trending belt of metamorphosed Archean supracrustal rocks consisting mainly of greywacke, micaceous quartzite or metarhyolite and schist.

Numerous large gossans formed on siliceous zones in these rocks are caused by sparse sulphide mineralization mainly pyrite, pyrrhotite, and minor chalcopyrite.

The SUE group is located near the eastern part of the metamorphic complex along the contact with the granite to the north which is very irregular due to off-setting on northerly trending faults.

Current Work and Results:

During March, 1971, 14 line-miles were surveyed using EM and magnetometer methods to determine whether favourable supracrustal rocks were present and to locate conductors but no conductors were found. Only a small portion of the SUE claims are underlain by favourable rocks, the main part being coarse intrusive rock.

HACKETT RIVER PROPERTY
Bathurst Norsemimes Limited
850, 385 Dunsmuir Street,
Vancouver, B.C.

Cu, Ag, Pb, Zn, Au
76 F/15,16
65°55'N, 108°22'W

Cominco Ltd.
200 Granville Square,
Vancouver 2, B.C.

References:

Fraser (1964); Hortal et al. (1974); MacNeil (1973); Shegelski and Thorpe (1972); Tremblay (1968, 1971); Wright (1957)

Property:

K 1-100	A201-300	BAT 1-18	T31001	MAY 10-20	A3668
L 1-71	A301-71	OX 1-82	T63577	JO 1-16	T68235
DL 1-175	T70435	HURST 19-33	T31019	OX 73-98	T70223
RN 1-18	T70405-22	H 1-100	A401	ND 1-61	A8763
BB 1-97	A9379	ONO 1-38	N41007	OKT 1-32	A3682
ZED 1-100	A7806-905	J 1-100	A101-200	T 1-62	A7539
C 1-36	A881	MAY 1-8	T68226-34	LC 109-110	T66096

Location and Access:

This property lies 300 miles north of Yellowknife near the Hackett River in the Nose Lake and Beechey Lake areas (see Map 3, P. 71), about 60 miles south of Bathurst Inlet on the Arctic coast. Access is by float- or ski-equipped aircraft.

History:

Rio Tinto Canadian Exploration Ltd. prospected the area in 1956, and reported copper mineralization in some gossans. The Geological Survey of Canada mapped the area as part of Operation Bathurst, and described a number of the gossans (Fraser 1964). What is now the A-zone was staked by Bathurst Inlet Mining Corporation Ltd.; in 1966 and 1967. In 1968 and 1969 Norsemines Ltd. and Atlin-Yukon Mining Ltd. staked additional claims in the area. Bathurst Norsemines Ltd., was formed by amalgamation of the above three companies in 1970.

Geological mapping, prospecting and geophysical surveys were done in 1968 (Thorpe 1972a) and 1969 (Hornal et al. 1974), and 13 shallow holes totalling 2903 feet were drilled in the latter year by Bathurst Inlet Mining Corp. Some impressive intersections with massive sulphides were obtained. The best assay results were: 37 feet of 1.34% Cu, 41 feet of 17.46% Zn, 3.03% Pb, and 7.67 oz Ag/ton and 10 feet of 1.08 oz Au/ton.

Cominco Ltd. optioned the Bathurst Norsemines property in January, 1970, under an agreement by which any property acquired in a one mile corridor around the Bathurst Norsemines claims will become part of Bathurst's Norsemines Ltd. holdings.

During 1970, Cominco Ltd. conducted a reconnaissance drilling and exploration program on parts of the 952 claims then under the Bathurst Norsemines Ltd. option. Extensive airborne and ground geophysical surveys outlined a string of conductive bodies 15 miles long and 2 miles wide. Several narrow conductors were also delineated but these all gave poor to weak responses.

In July and August 1970, 21 holes, totalling 10,804 feet, were drilled on the most favourable conductors. The best core intersection gave assays of: 13 oz Ag/ton, 3.73% Pb, 23.4% Zn over 25 feet and 2.77% Cu over 94 feet. By the end of 1973, Cominco Ltd. had spent over \$1,000,000 on the property.

Description:

All the layered rocks in the area are Yellowknife Supergroup supracrustal units intruded by granitic bodies. Interest is centred along a belt of east-southeasterly trending siliceous volcanic rocks that dip moderately to steeply southwest.

A body mineralized with sphalerite, chalcopyrite, galena and silver, plus layers of massive iron sulphides, occurs in a host of felsic pyroclastics comprised mainly of

rhyolites, crystal and lapilli tuffs and coarse agglomerates. Limestone beds are locally interlayered with the pyroclastic units but the dominant sedimentary type is greywacke.

A major fault striking southeasterly across the southern part of the property can be traced for 15 miles.

Current Work and Results:

The Cominco Ltd. option from Bathurst Norsemes Ltd. was the scene of extensive exploration activity during 1971.

Geonics EM-17 ABEM Minigun, Sharpe MF-1 Fluxgate magnetometer and Worden "Master" quartz spring gravity meter were used in conducting 167 line-miles of EM survey, 62 line-miles of magnetometer survey and 1 line-mile of gravity traverse over portions of 40 grids. The grids were located to cover airborne EM anomalies discovered by a helicopter EM survey in 1970. More than 60 conductors were indicated by the survey.

During July and August of 1971, 21 holes were drilled on the BB, RN, LD, MAY and T claim groups. The best individual assay results, obtained in 1972, from the cores of two holes on BB 61 were: 0.16 oz Au/ton, 17.3 oz Ag/ton, 2.50% Cu, 5.60% Pb, and 17.00% Zn.

During the summer of 1971, 27 line-miles of EM, 9 line-miles of magnetometer, and 2 line-miles of gravity surveys outlined five short conductive zones on the Main Grid of the B 1-9 claims. Three conductors found on the "Minigun Grid" may be extensions of those found on the "Main Grid". Several weak northwest trending conductors were delineated on the ZED claims.

Four hundred and seven soil samples taken from the ZED claims were analysed for Cu, Pb, Zn, and Ag. Anomalous values were obtained on ZED 7 and 8.

SUE GROUP

Hogan Mines Limited

76 F/15

811, 850 West Hastings Street,
Vancouver, B.C.

65°53'N, 108°31'W

References:

Fraser (1964); Shegelski and Thorpe (1972); Tremblay (1968, 1971);
Wright (1957)

Property:

SUE 1-36 A30501-36

Location and Access:

The property is located in the Hackett River area, 300 miles northeast of Yellowknife (see Map 3, P. 71). Access is by float - or ski-equipped aircraft.

History:

The SUE 1-36 claims were staked by F. Diamond in April, 1971.

Description:

The area is underlain by a broad northwesterly trending belt of metamorphosed Archean supracrustal rocks now mainly greywacke, micaceous quartzite or meta-rhyolite and schist. These have probably undergone several periods of folding.

Numerous large gossans within a siliceous zone in the metamorphic, possibly volcanic rocks mark the presence of sparse sulphides that consist mainly of pyrite and pyrrhotite with minor chalcopyrite. Drilling on EM anomalies has located some sphalerite and galena.

Current Work and Results:

In July 1971, 29 line-miles of reconnaissance EM and 20 line-miles of reconnaissance magnetic surveys were done to locate conductors but none were outlined. Reconnaissance magnetic surveys have delineated two magnetic trends conformable with the strike of the sedimentary beds, and in one case conformable with a contact between quartzites and mica schists. A massive pyrite sample from an angular boulder field close to this magnetic trend assayed: 0.50 ounces of silver.

HUNT GROUP
Savana Creek Gas and Oil Limited
932 - 12th Avenue Southwest,
Calgary, Alberta.

Cu, Zn, Pb, Co
76 G/4
61°13'N, 107°43'W

References:

Fraser (1964); Wright (1967)

Property:

HUNT 1-36 A35682

Location and Access:

The HUNT claims are located 10 miles north of Regan Lake in the District of Mackenzie, N.W.T., on the Back River system. Access to the property is by float- or ski-equipped aircraft.

History:

The 36 HUNT claims were staked for C. Warren Hunt in December, 1971.

Description:

The HUNT claims are underlain by a series of steeply dipping amphibolites and impure quartzites that strike approximately 130° across the claims and dip 60° to 70° southwest.

Two bands of amphibolite (probably altered basalt flows) are interbedded with the metasediments. Pyrite, pyrrhotite and some arsenopyrite are commonly found at the contact with the sediments but there is no mineralization of note in the limestones, calcareous quartzites, or diabase.

Current Work and Results:

During the summer of 1971, EM and geological surveys were carried out over a large area, including that later staked as the HUNT group. Two zones of interest called A and B include the strongest EM responses: an extensive gossan zone which extends for about 8000 feet forms Zone B. Sporadic pyrite and pyrrhotite with local arsenopyrite and magnetite was noted over the entire area of Zone A. The highest geochemical assays of rock chips taken from zones A and B were: Cu, 198 ppm; Zn, 1750 ppm; Ni, 189 ppm; and Co, 375 ppm. Gold and silver assays were discouraging.

Rock chips collected during the geological reconnaissance program, gave these maximum metal contents: 407 ppm Cu, 1750 ppm Zn, 340 ppm Ni, 675 ppm Co, 0.01 oz/ton Au, 0.09 oz/ton Ag. Analyses for 30 elements were also made by only arsenic and lead gave results greater than 1%, (as 1-10% and Pb greater than 10%).

PROSPECTING PERMIT 249

Aquitaine Company of Canada Limited

76 H/8

2000, 540 - 5th Avenue Southwest,

65°22'30"N, 104°15'W

Calgary, Alberta.

Reference:

Wright (1967)

Property:

Prospecting permit 249

76 H/8

Location and Access:

The area falling under permit 240 lies near the eastern border of the Mackenzie District immediately north of the Back River approximately 360 miles northeast of Yellowknife. Access is by small aircraft.

History:

Prospecting permit 249 was issued in 1971, work was recorded in the same year and the whole permit area was relinquished in 1972.

Description:

Published geological maps (Wright 1967) indicate the area is underlain entirely by granitic rocks that are locally gneissic. The boundary between the Slave and Churchill Structural Provinces lies approximately 40 miles west of the area, thus the permit area may lie in a zone of intense structural displacement and polymetamorphism, where Archean Slave rocks have been reworked by the Hudsonian Orogeny.

Current Work and Results:

An airborne radiometric, magnetic, and EM survey was completed over the permit area in 1971. The permit was relinquished in 1972.

HAC GROUP
Ice Station Resources Limited
1601, 1277 Robson Street,
Vancouver, B.C.

Cu
76 K/1
66°03'N, 108°25'W

Reference:

Tremblay (1968, 1971)

Property:

HAC 1-93 A8218-310

Location and Access:

The HAC claims are located $\frac{1}{2}$ -mile south of the junction of the Mara and Hackett Rivers (see Map 3, P. 71). Access to the property from Yellowknife, 308 miles to the southeast, is by float- or ski-equipped aircraft.

History:

D. Mercredi and E. Sonnenberg staked the HAC claims in August 1969 to cover possible extensions of base metal sulphide zones from the Bathurst-Norsemines Ltd. property which lies 10 miles to the south. The claims were transferred to Ice Station Resources (NPL) in December, 1970, and are still in good standing (June 1973).

Description:

The major portion of the claims is underlain by two greenstone belts which trend northwest across the property and curve to the west. These belts are separated by metasedimentary rocks composed largely of quartz-biotite-muscovite schists. A granitic contact occurs $\frac{1}{2}$ -mile south of the property. Two small plugs were observed in the south-central section of the claims. Sulphide mineralization consists largely of pyrrhotite and is restricted essentially to the granitic and mafic gneiss. Massive and disseminated pyrite are also present in some outcrops.

Pyrrhotite which may be of volcanogenic origin comprises of the rock content along some foliation planes and as much as 80% in some breccia zones.

Current Work and Results:

In 1971 80 line-miles of magnetic and EM surveys were made on 600 foot line-spacings. The reconnaissance EM surveys revealed two series of parallel discontinuous conductive zones and strong magnetic trends were found to coincide with them. Some conductors were attributed to massive pyrite, pyrrhotite, and/or magnetite but approximately seventeen were unexplained, especially those with low or non-magnetic responses.

Geological mapping and diamond drilling were carried out in July and August, 1972, to check two conductive zones located in the 1971 survey. Twelve holes, totalling 2925 feet, were drilled and core from selected locations were assayed for Cu, Zn, Au and Ag, but none of the assay results were significant. The highest zinc assay was: 0.63% Zn over 5 feet. Traces of chalcopyrite and sphalerite were encountered but were of no economic importance.

Further exploration of the conductive zones would require additional diamond drilling on the zone intersected by drill holes HAC 72-5,6,7,8,10 and 12 which encountered traces of base metal sulphides.

PROSPECTING PERMITS 60, 61 and 62
Norman H. Ursel,
Suite 210,
2399 Cawthra Road,
Mississauga, Ontario.

76 L/4
66°07'30"N, 111°45'W
76 L/10,15
66°45'N, 110°45'W

References:

Hornal et al. (1974); Wright (1967)

Property:

Prospecting permit 60
Prospecting permit 61
Prospecting permit 62

76 L/4
76 L/10
76 L/15

Location and Access:

The areas covered by permits 60, 61 and 62 straddle the northern half of the Slave structural province, just north of Contwoyto Lake. Access is essentially by fixed wing aircraft and excellent air service is available out of Yellowknife.

History:

Permits 60, 61 and 62 were issued in 1968. Work was recorded on them in 1968 and 1969. They lapsed in 1971 with no work done that year.

For further information refer to Hornal et al. (1974).

PROSPECTING PERMITS 270 and 271	Au, Ag, Pb, Zn, Cu, Sb
Oakwood Petroleums Ltd.	76 M/2,3
1180, 727 - 7th Avenue Southwest,	
Calgary, Alberta.	

Polar Explorations Limited
1800 Elveden House,
Calgary, Alberta.

Mollie Mac Mines Ltd.
3443 Capilano Road,
North Vancouver, B.C.

References:

Fraser (1964); Hornal et al. (1974); McGlynn (1971); Padgham, Jefferson et al. (1974); Thorpe (1972a)

Property:

Prospecting permit 270	76 M/2
Prospecting permit 271	76 M/3

Location and Access:

Quadrangles 76 M/2 and M/3 are adjacent to one another and lie on the James River, some 65 miles east of Bathurst Inlet in the northern part of the Slave Structural Province, 320 miles north-northeast of Yellowknife.

History:

Prospecting permits 270 and 271, issued to Oakwood Petroleums Ltd. and Polar Explorations Ltd. in 1971, cover NTS 76 M/2 and M/3. Work was done on the property in 1971 by Mollie Mac Mines Ltd.

Intensive exploration was begun in the general area in the summer of 1955 by Kenarctic Explorations Limited who

obtained the "James River Reservation" in 1956, (McGlynn 1971, p. 84). This reservation included the western half of 76 M/2 and all of M/3. Some 13 mineral showings, most probably dating from Kenarctic's work, are known in the two quadrangles (DINA mineral occurrence overlay for 76 M, Yellowknife 1974). Three occurrences of gold-silver, two of copper and one of lead-silver-zinc-antimony have been located in M/2, and 5 showings of copper-zinc and two of copper in M/3. All 13 showings lie in a 12 mile long cluster centered on 111° West longitude and 67°10' North latitude, an area shown to be underlain by an easterly trending area of sedimentary rocks in a dominantly northerly trending volcanic terrain.

The A and B claim groups were staked in 76 M/2 during 1967 to cover veins mineralized with pyrrhotite, sphalerite, galena, boulangerite, arsenopyrite and minor chalcopyrite (Thorpe 1972a, p. 95). Silver is the main metal of interest in these veins with at least one assay of 50 ounces to the ton reported. During the same year copper-zinc showings were staked as the C group in the adjacent area 76 M/3. Sample assay returns of: 1% Zn, 1.78% Cu and 2.0 oz of Ag/ton are reported by Thorpe (1972a, p. 96) for these showings.

During July and August, 1969, a test IP survey was conducted on the CED Lake grid on the KP and UG claims by McPhar Geophysics for Polar Star Mines (Hornal et al. 1974). These claims have lapsed.

Description:

The only published maps of the area at a scale of one inch to 8 miles (Fraser 1969), were made by a helicopter supported reconnaissance survey. They indicate that quadrangles 76 M/2 and M/3 are underlain by a wide belt of metavolcanic rocks dominantly of intermediate composition, which in the High Lake area (76 M/7) immediately to the north, may contain more than one volcanic cycle (Padgham, Jefferson et al. 1974). These rocks are presumably overlain by a sequence of greywacke type sediments which include graded beds of coarse greywacke sandstone and thinner beds of black strongly cleaved argillaceous to slaty rock. Large masses of intrusive granite to granodiorite and locally diorite and gabbro have invaded the supracrustal rocks without significantly affecting their metamorphic grade, which is generally greenschist facies. Flat lying sheets of diabase form spectacular cliffs in the northeastern part of the area, and narrower vertical dykes, probably feeders are associated with them.

Gossans are widespread and easily recognized in this treeless area. Numerous apparently "strataform" iron sulphide layers have been located in the volcanic rocks and at least one in the area north of the permits, marks a volcanogenic copper-zinc deposit of significant size and grade. Somewhat similar but less extensively explored mineralization occurs at Canoe Lake in 76 M/3.

Current Work and Results:

In June 1971 Mollie Mac Mines Ltd. acquired an option on permits 270 and 271 by which they could earn a 50% interest in any mineral deposits located. They retained Tri-Con Exploration Surveys Ltd. to explore portions of the permit areas that were considered favourable.

Work done and results on the area of permit 270, include geological mapping, geochemical soil sampling, and vertical loop EM surveys on areas chosen from the geological and airborne magnetic and EM surveys done in the area in 1957 for Kenarctic Explorations Limited. During 1971 all grid areas were geologically mapped and the rocks sampled. Grab and chip samples were taken from mineralized zones to test for valuable metal content. Systematic soil sampling of all grids was done and samples were analysed for copper, lead and zinc. The resulting data was contoured separately on each grid. Considerable masking or damping was credited to till and esker deposits, but the geochemical results served to outline the rock type units and mineralized zones. A SE 300 EM unit with frequencies of 400 and 1600 cps was used to take readings every 100 feet along the survey grids.

As a result of this work the grided areas were considered to be of little interest and permit 270 was released.

The work done and results achieved on the area of permit 271 have not been released. Although all but 10% of this area has been relinquished the area still held under the permit includes at least three copper showings. One of these has been called Kenarctic showing No. 12 and contains "pyrite with minor pyrrhotite and chalcopyrite"... "as minute stringers in a silicified, graphitic shear or breccia zone in altered volcanics." A chip sample of this zone returned 0.14% Cu across 8.5 feet (G.S.C. Mineral Inventory File 76 M/3 Cu 1). A second showing, called the C Group (op. cit. 76 M/3 Cu 2) contains pyrrhotite, pyrite, chalcopyrite, sphalerite and minor galena in sheared dacite or rhyolite. The third showing at the west end of Canoe Lake consists of small zones of massive sulphide associated with a 1500 foot long gossan. Encouraging

copper, zinc and silver assays were obtained from material taken from this showing (op. cit. 76 M/3 Cu 4). Two sphalerite occurrences, one in a quartz vein, the other in a rhyolite breccia are in the area still held under permit 271.

Texasgulf Inc. 76 and 86
(Ecstall Mining Limited)
36th Floor, Toronto-Dominion Centre,
Toronto, Ontario.

References:

Fraser (1964); McGlynn in Douglas (1970); McGlynn and Henderson in Price and Douglas (1972); Thorpe (1972b)

Property:

None

Location and Access:

This region is accessible only by aircraft at the present time.

Texasgulf Inc. conducted geological exploration and prospecting on various greenstone belts in the northern and northeastern part of the Slave Province during 1971 and 1972.

History:

Widespread prospecting for gold deposits has been conducted in this region during the past 40 years. Base metal prospecting has been less intensive and many areas have received only a pre-cursory investigation. Recent discoveries, in the northeastern part of the Slave Province (Hackett River region), have disclosed zinc-lead-copper-silver deposits that are significantly less responsive to airborne EM surveys than the copper-zinc-gold-iron sulphide deposits found in other parts of the Canadian Precambrian Shield, and ground work to locate more favourable areas of the Slave Province volcanic belts for extensive prospecting is a necessary step in any exploration program here.

Description:

McGlynn (in Douglas 1970) and McGlynn and Henderson (in Price and Douglas 1972) have published excellent descriptions

of the geology of the Slave Province, and Thorpe (1972b) has described the metallogeny of the Province in some detail. The reader is referred to these authors for a description of the region. More detailed work by various Geological Survey officers who have mapped parts of the region are also available, or in press. Most of the northern and northeastern parts of the Slave Province have been mapped mainly by helicopter supported reconnaissance surveys (Fraser 1964).

Current Work and Results:

During 1971 Texasgulf Inc. conducted preliminary geological evaluations of acid volcanic rocks between the Back River and Nose Lake. In 1972 similar rocks were prospected in the Regan Lake area, the Itchen Point and Redrock Lake area and the Takiyuak Lake area. Presumably as a result of this work Ecstall Mining Limited obtained prospecting permit 296 covering 86 1/2 area in 1973.

RUSS and VAN CLAIMS
Hope Bay Mines Limited
1840, 777 Hornby Street,
Vancouver 1, B.C.

Ag
77 A/3
68°10'N, 106°35'W

References:

Fraser (1964); Thorpe (1972a)

Property:

VAN N35868
RUSS N35121

Location and Access:

The claims lie near Hope Bay, on the Arctic Coast, 450 miles north-northeast of Yellowknife. They are most readily accessible by charter aircraft from Cambridge Bay 80 miles to the northwest.

History:

The Roberts Bay Mining Company explored the region and located the Ida Point and Roberts Lake silver prospects in 1965 and 1966. The Hope Bay Syndicate optioned the claims and staked 209 claims in 77 A/3 and 6 and in adjacent parts of 76 to the south. After 3 years of work by which they earned an interest, Hope Bay Syndicate optioned the claims to New Hope Bay Mines Limited.

Thorpe (1972a, p. 110) has summarized the exploration activities on these claims to 1968. No work appears to have been done between 1968 and 1971.

Description:

Reconnaissance geological maps published at a scale of 8 miles to the inch show the area of the claims to be underlain by metamorphosed supracrustal rocks assumed to be parts of the Yellowknife Supergroup.

Thorpe (1972a, p. 111) has adequately described the geological situation of the "Ida Point" showings on the VAN, and RUSS claims.

Current Work and Results:

Additional trenching was done on two showings on the RUSS and VAN groups in 1972. Some high grade silver bearing material was produced and a shipment of handpicked material was made.

TO GROUP	Cu,Co
Ram Cay Resources	85 I/l
1600 - 10024 Jasper Avenue,	62°07'N, 112°25'W
Edmonton, Alberta.	

References:

Fortier (1946, 1947); Henderson (1938, 1939a); Hoffman (1968); Hutchinson (1955); Jolliffe (1936, 1944); Kretz (1968); Stockwell (1936)

Property:

TO 1-18 A34128-45

Location and Access:

The property is located approximately 67 air miles southeast of Yellowknife on the north shore of Hearne Channel. It is accessible by boat via Great Slave Lake or more conveniently by float- or ski-equipped aircraft.

History:

The claims, staked by G. Oystrek in July 1971, were transferred to the Greentree Syndicate, and again transferred in May 1972 to Ram Cay Resources Limited. Representation work sufficient to keep the claims in good standing until July 1973 had been recorded as of January 1973.

Description:

The TO claims are underlain by rocks of the Archean Yellowknife Supergroup intruded by granitic rocks on the west part of the claims. These Archean metasediments consist of steeply southeast dipping knotted quartz-mica schist and hornfels.

Locally the metasediments have been folded and sheared by the adjoining intrusive. A sulphide rich vein within a quartz-filled shear is traceable for over 600 feet. The vein trends 018° and dips 78° E parallel to the bedding of the enclosing metasediments. Sulphide minerals include arsenopyrite, pyrite, pyrrhotite, and chalcopyrite: small amounts of bornite, azurite, and cobalt bloom were also noted.

Current Work and Results:

A geological investigation of the claims carried out in July, 1971, established that the mineralized vein averages 8 to 12 inches wide and lies along a shear zone. The vein which is 3 or 4 feet wide in places has no visible gold. A channel sample of the vein assayed 0.88% Cu and less than 0.01 oz/ton Au and a character sample taken from the quartz-mica schist returned 3.12% Cu. Five pits were excavated but no information about them is available.

Ground along the projected strike of the vein has some potential but the vein proper is considered to be of less potential than the surrounding fractured terrain.

ZIG GROUP
Zig Mines
7504, 100 Street,
Edmonton, Alberta.

Ni,Cu
85 I/2
62°03'N, 112°56'W

References:

Fortier (1946); Henderson (1938, 1939); Jolliffe (1936); Stockwell (1936)

Property:

ZIG 1-4 T81101
ZIG 5-13 T80958

Location and Access:

The ZIG claims cover an island in Francois Bay on the north shore of Great Slave Lake, about 55 miles southeast of Yellowknife. Access is by boat and float- or ski-equipped aircraft.

History:

Interest in the property by the present owners dates back to 1956 and 1958 when J.C. Ferguson first visited the island with J. Robb. They had the island staked in September 1968 by Lawrence Jackson. Ferguson prospected on the island in May 1969.

A geological investigation of the property was made during October 1969.

Description:

The island covered by the ZIG claims is underlain by metamorphic rocks of the Yellowknife Supergroup. They comprise nodular quartz-mica schist and hornfels, derived from greywacke and argillite.

Numerous grey quartz veins believed to be auriferous were located. Although they are similar to gold bearing veins in the southern Slave Province and are mineralized with sulphides, only careful sampling and assaying would determine whether they are gold bearing at this locale.

Current Work and Results:

An EM survey in 1971 established a number of anomalies. A follow-up program was designed to locate massive arsenide and/or sulphide lenses that might occur in the veins on the property.

Late veins which contain niccolite, smaltite, and chalcopyrite are thought to occur along tensional fractures and minor shears subsidiary to a northeast striking fault. Mineralization is present only in a few locations in these veins and then in only minor pockets. Such late niccolite in carbonate veins were not considered of economic interest. The best gold assay obtained from the gold-quartz veins was :0.01 oz Au/ton.

TA GROUP	Au, Ag, W
Duke Mining Limited	85 I/7
615 - 6th Street,	62°20'N, 112°45'W
New Westminster, B.C.	

References:

Henderson (1941); Hornal et al. (1974); Lord (1951)

Property:

TA 1-4 A37246

Location and Access:

The four adjacent TA claims are located 47 miles east of Yellowknife and 4 miles west of Francois Lake. They may be reached by airplane from Yellowknife or by 32 miles of winter road from the mouth of the Francois River on Great Slave Lake.

History:

The property was staked in 1940 for the Consolidated Mining and Smelting Company of Canada Limited. Following prospecting, trenching and drilling, a shaft was sunk in 1941 and a small mill was put into operation. For a detailed account of the history prior to 1968 refer to the "Ruth Group" (Lord, 1951).

In 1968, the main veins were re-trenched and sampled and the ore pile from the old shaft was also sampled. The best surface vein sample assayed 13.72 oz/ton Au and 2.29 oz/ton Ag

over one foot. Samples from the ore pile assayed as high as 29.80 oz/ton Au and 7.58 oz/ton Ag. A total of 10,485 feet of drilling was completed in 62 holes during 1969 and 1970. Core intersections containing gold were narrow and they usually assayed below one oz/ton: the best assay reported was: 21.63 oz/ton Au over one foot.

Description:

The claims are underlain by altered sediments of the Yellowknife Supergroup and consist of nodular, schistose grey-wackes, phyllites and fine-grained mica schists. Quartz veins and seams are numerous. They commonly lie parallel the enclosing strata and some are minutely folded and greatly fractured.

Four veins have been extensively explored. The No. 1 vein, exposed for a length of 430 feet has an average width of 2 feet and contains a 50 foot long, 1.4 foot wide zone grading 0.50 oz/ton gold. Vein No. 2 is exposed for a length of 1250 feet and contains arsenopyrite, pyrite, scheelite and visible gold in fine-grained white to grey quartz. This vein bends at its midpoint, near the old shaft where a 300 foot long, 0.60 foot wide zone grading 3.69 oz/ton Au has been delineated by surface sampling. The No. 3 vein located one mile north of the shaft is exposed for 1,800 feet: its average width is one foot and it contains a shoot 120 feet long and 1.5 feet wide that has an average grade of 0.30 oz/ton Au. Vein No. 4 consists of irregular, discontinuous quartz bodies exposed along a strike length of 625 feet. The quartz is reported to contain gold and scheelite but no assays are available.

Current Work and Results:

In December, 1972, three diamond drill holes, totalling 1428 feet, intersected narrow - usually less than 2 feet wide - quartz veins which contained from a trace to 0.54 oz/ton Au. The intersections averaged below 0.1 oz/ton Au with the best intersection obtained grading 0.54 oz/ton Au over 2.6 feet.

PROJECT QUESTORE
Shield Resources Limited
930 - 169th Street,
Edmonton, Alberta.

Cu,Zn
85 I/8,16; J/16; P/1,8
63°21'N, 112°29'W
62°55'N, 114°10'W

References:

Henderson and Joliffe, (1937); Miller (1949); Moore et al. (1951)

Property:

AA, BB, DD, CC, EE, FF, GG, HH, II,
JJ, KK, LL, MM, NN, OO, PP, QQ, RR,
TT, UU, WW, XX, YY and ZZ claim groups

Location and Access:

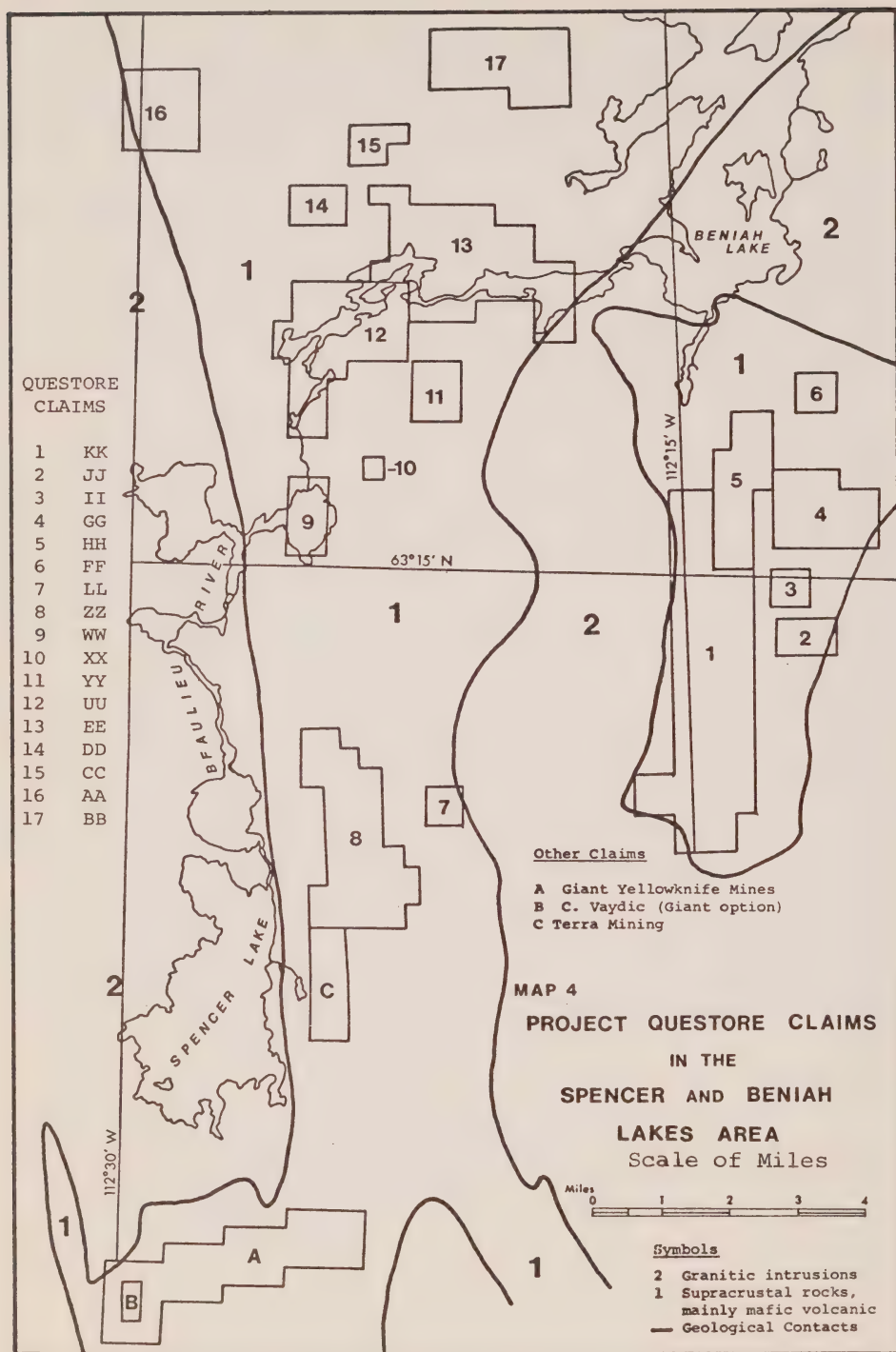
Work carried out during the project covered a substantial portion of the Beaulieu River greenstone belt (see map 4, p. 92) and a northward extension of the Yellowknife greenstone belt (see map 5, p. 94). The areas lie approximately 70 miles northeast and north of Yellowknife and are accessible from that centre by float- or ski-equipped aircraft and by winter roads.

History:

During May and June of 1970, Shield Resources Limited, in cooperation with Numac Oil and Gas Ltd., undertook an ambitious exploration program to provide geophysical data on the Beaulieu River greenstone belt and a northern part of the Yellowknife greenstone belt. An airborne electromagnetic survey conducted by Questor Surveys Limited, covered approximately 225,000 acres in 1,776 line miles. Survey lines were flown on 1,000 foot spacings, with ground clearance maintained at about 150 feet. Numerous anomalies were outlined, the most promising of which were protected by a total of 397 claims staked in 1970 and 1971.

Description:

Both of the areas investigated are underlain by Archean supracrustal rocks of the Yellowknife Supergroup. Mineralized zones located seem to occur primarily in stratabound sulphide horizons in association with fine-grained, graphitic sediments, some chert, felsic agglomerates and volcanic breccias. The predominant metallic minerals are pyrite and pyrrhotite with lesser amounts of chalcopyrite and sphalerite.



Map 4. Project Questore Claims in the Spencer and Beniah Lakes area. (85 P/1+8).

Current Work and Results:

Ground follow-up was carried out in 1970 and 1971 and consisted of line cutting, ground electromagnetic and magnetic surveys, exploratory drilling and geological mapping. Diamond drilling on the highest priority anomalies amounted to 7,622 feet. Further drilling was not anticipated until a proposed geochemical soil survey could be completed.

It was concluded that many of the conductive zones indicated by the airborne aeromagnetic survey could be ascribed to graphitic horizons. Economically valuable sulphides made up only a small portion of the mineral zones intersected by drilling.

The southern parts of the area surveyed by Project Questore yielded mostly negative results but the northern parts, including the KK, EE and UU groups, were more encouraging and further work was undertaken in this area during 1973.

KIL GROUP	Cu, Zn, Ag, Mo
Yellowknife Syndicate	85 I/10
c/o Geophysics and Engineering Services Ltd.	62°40'N, 112°40'W
Box 49, Toronto-Dominion Centre,	
Toronto 1, Ontario.	

The Yellowknife Syndicate was formed in 1970 to explore greenstone belts northeast of Yellowknife. The participants in the Syndicate are:

Yellowknife Bear Mines Limited	25%
Long Lac Mineral Exploration Limited	25%
Hydra Exploration Limited	25%
Keevil Mining Group Limited	25%

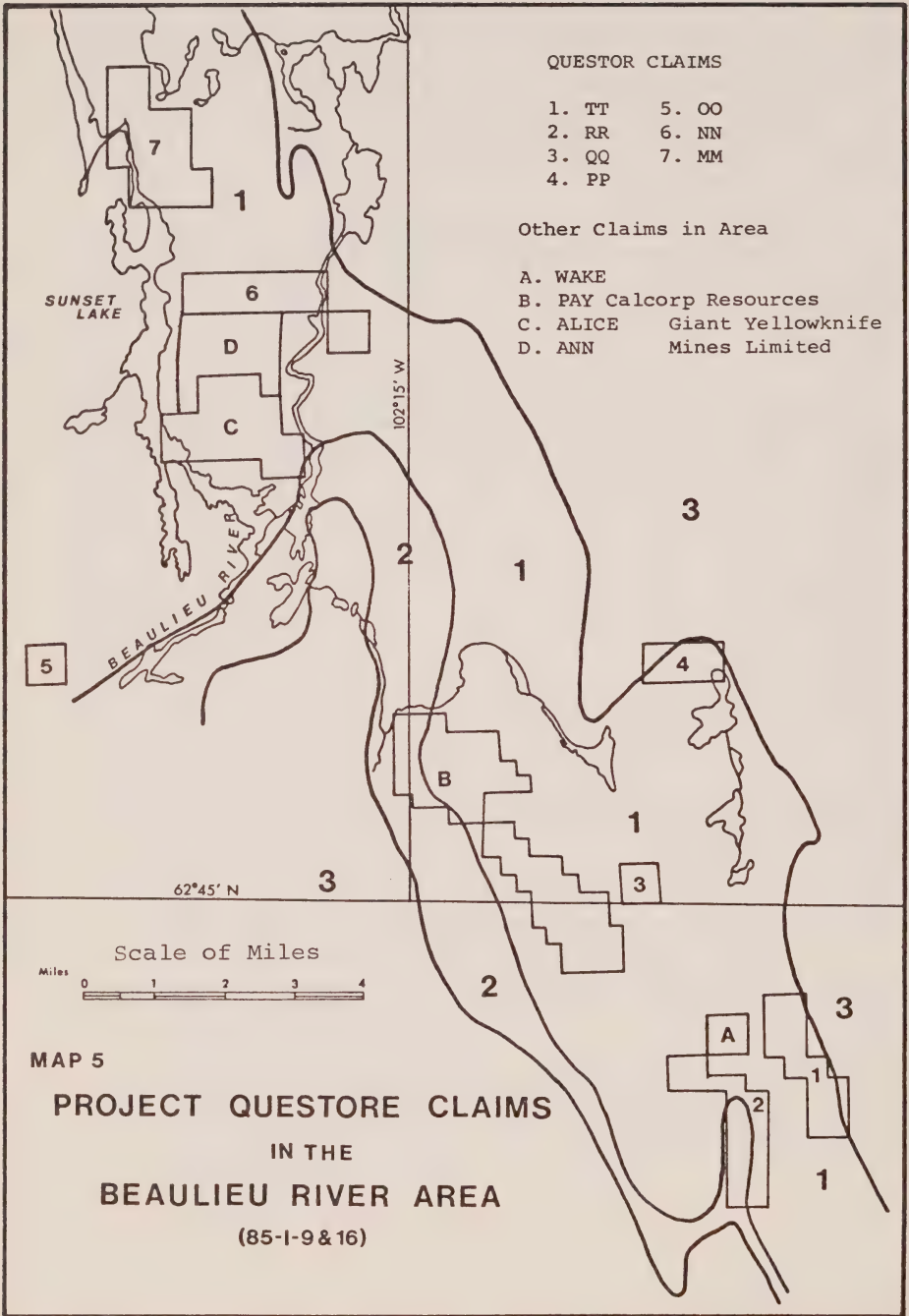
References:

Baragar (1961); Davidson (1972); Henderson (1941, 1944); Henderson and Jolliffe (1937); Henderson et al. (1972); Lord (1951); McGlynn (1971); Moore (1951); Shegelski and Thorpe (1972)

Property:

58 claims:

KIL 1-44	A47492-535
KIL 45-50	A18375-80
KIL 51-58	A34466-73



Map 5. Project Questore Claims in the Beaulieu River area.
(85 I/9+16).

Location and Access:

The KIL group is on the Beaulieu River and Turnback Lake mainly in the Tumpline Lake map-area (85 I/10). The claims are accessible by ski- or float-equipped aircraft which make use of any of a number of lakes in the environs of the claim group.

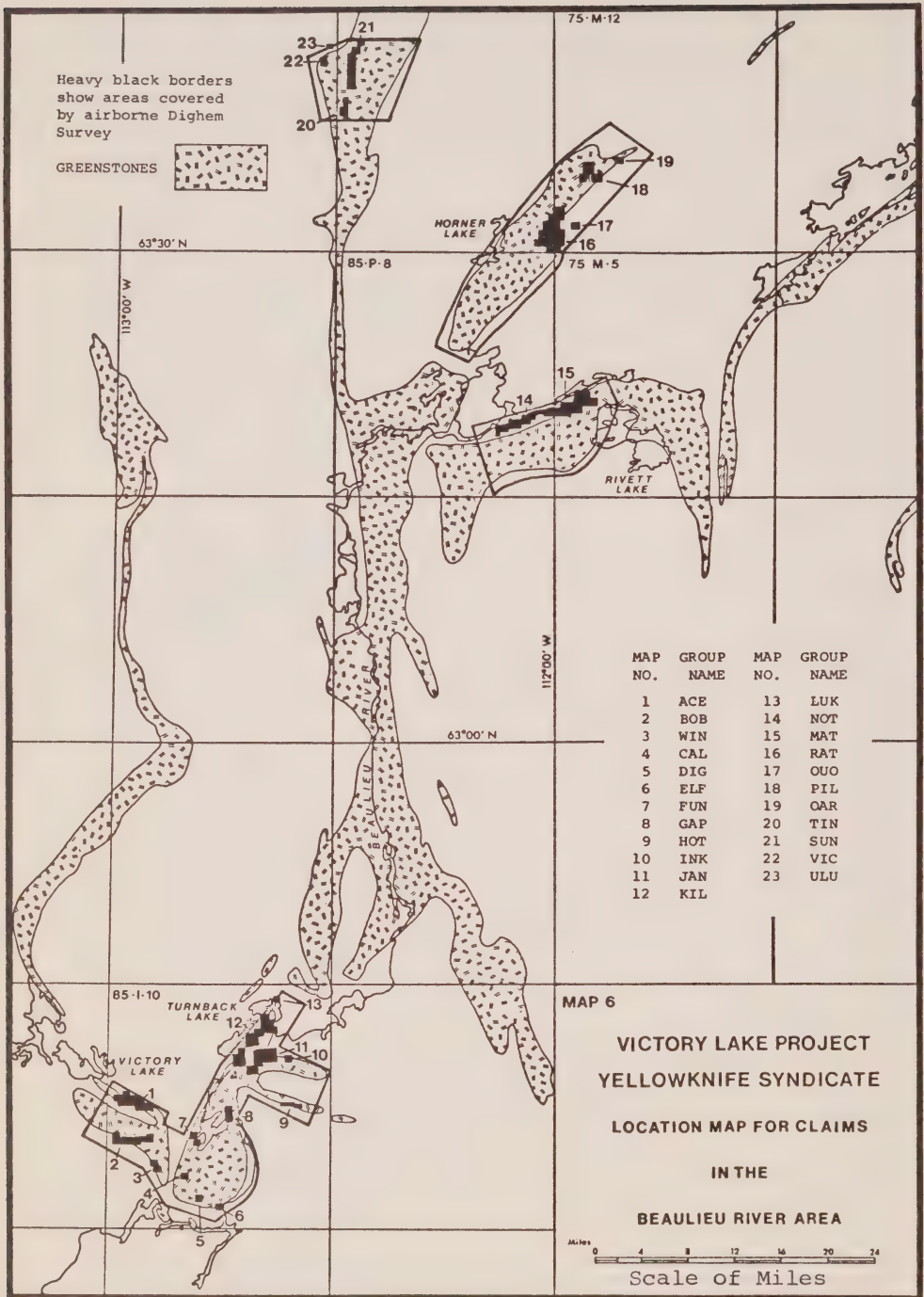
History:

Sulphides were discovered in the area in 1937 and the XL and OK groups were staked and explored between then and 1939 by Westfield Minerals Limited who drilled 14 holes and dug 15 trenches on the XL group. Cominco Ltd. restaked the ground as the XLX group and did extensive work in the area around 1951: the work included detailed geological and geophysical surveys, diamond drilling and trenching. Most of the claims were abandoned to be restaked by the Yellowknife Syndicate, in 1970, as part of the Victory Lake Project (see Map 6, p. 96).

Description:

Metamorphosed Yellowknife Supergroup supracrustal rocks intruded by granodiorite, pegmatite and diabase dykes make up the bedrock in the Turnback Lake area. Metasedimentary rocks striking 040° and dipping 60° to 85° SE and comprised of amphibole-mica-garnet schists and gneisses and garnetiferous granulites underly the KIL group on the west side of the Turnback Lake belt of supracrustal rocks. Along the west side of the group a quartzite band separates the bulk of the metasediments from a granite body that dips southeasterly under the mineralized portion of the KIL claims. Based on the commonly assumed succession in Yellowknife Supergroup rocks a sequence of volcanic rocks east of the claims is overlain by sediments to the west, all dip to the east, so that the sequence is overturned and defines a broad syncline plunging east. Granodiorite observed along the west side of the KIL group, intrudes the core of the syncline. Minor steeply dipping faults strike normal to the bedding and produce offsets on the sediments of less than 100 feet.

Sulphide mineralization forms long narrow conductive zones parallel with the bedding so that they appear to be stratabound and may be of syngenetic origin. Sphalerite and pyrrhotite are fine-grained and concentrated along specific sedimentary layers but chalcopyrite, galena, and pyrite are coarse-grained and more irregularly distributed. The best mineralized rocks are associated with the western conductor and form eight fairly continuous zones in a unit varying from 5 to 20 feet wide throughout its length. Conspicuous yellowish gossans have



Map 6. Location Map, Victory Lake Project, Yellowknife Syndicate Claims, Beaulieu River area.

developed wherever the zone outcrops. Trenches indicate that the sulphides occur in quartz-rich sediments, limy beds, and in amphibolitic gneiss.

Pyrrhotite is the most abundant sulphide and lesser amounts of sphalerite, chalcopyrite, pyrite, galena and molybdenite are found. In places the silver content is considerable. A second and parallel sulphide zone lies 300 to 600 feet east of the main zone and differs from it only in the almost complete lack of base metals and the presence of graphite.

Current Work and Results:

The KIL group was staked in 1970, to cover airborne EM anomalies disclosed by an aerial survey with Digheem equipment. Group follow-up consisted of geophysical surveys, geological mapping, prospecting, trenching and sampling. A "Radem" ground survey indicated seven distinct anomalies along the barren east zone and twelve along the Cu-Zn-Ag bearing main zone. Trenching and earlier drilling of five of the sulphide zones indicated some 2000 tons per vertical foot with an average width of seven feet and a value of about \$20/ton. The grade, width, and total tonnage possibilities, are too limited to make the deposit economic under present conditions.

ROD 1-30	Cu
Great Plains Development Company	85 I/10
of Canada Limited,	62°33'N, 112°50'W
736 - 8th Avenue Southwest,	
Calgary, Alberta.	

References:

Fortier (1946); Henderson (1938, 1941, 1944); Stockwell (1936)

Property:

ROD 1-30 A34356-85

Location and Access:

The 30 ROD claims lie 50 miles east-northeast of Yellowknife, in the Trout Lake area. Access to these areas is by float- or ski-equipped aircraft.

History:

All of the ROD claims staked in July and August, 1971, and transferred to Great Plains Development Company of Canada Limited on August 5th, 1971 have lapsed.

Description:

The Trout Lake area is underlain by quartz-mica schist and andesite. Faults and shear zones are represented by filled and unfilled linears. Rusty weathered shear zones which lie along the south shore of Trout Lake are mineralized with pyrite and pyrrhotite.

Current Work and Results:

In July and August 1971 aeromagnetic anomalies were checked by geological and ground geophysical surveys. The anomalies in the Trout Lake area appear to correlate with rusty weathered andesite zones that contain pyrite and pyrrhotite.

BIG, TOW, HEA and PLUG CLAIMS

Great Plains Development Company
of Canada Limited,
736 - 8th Avenue Southwest,
Calgary, Alberta.

85 I/10,15; P/6,7
64°00'N, 115°15'W

References:

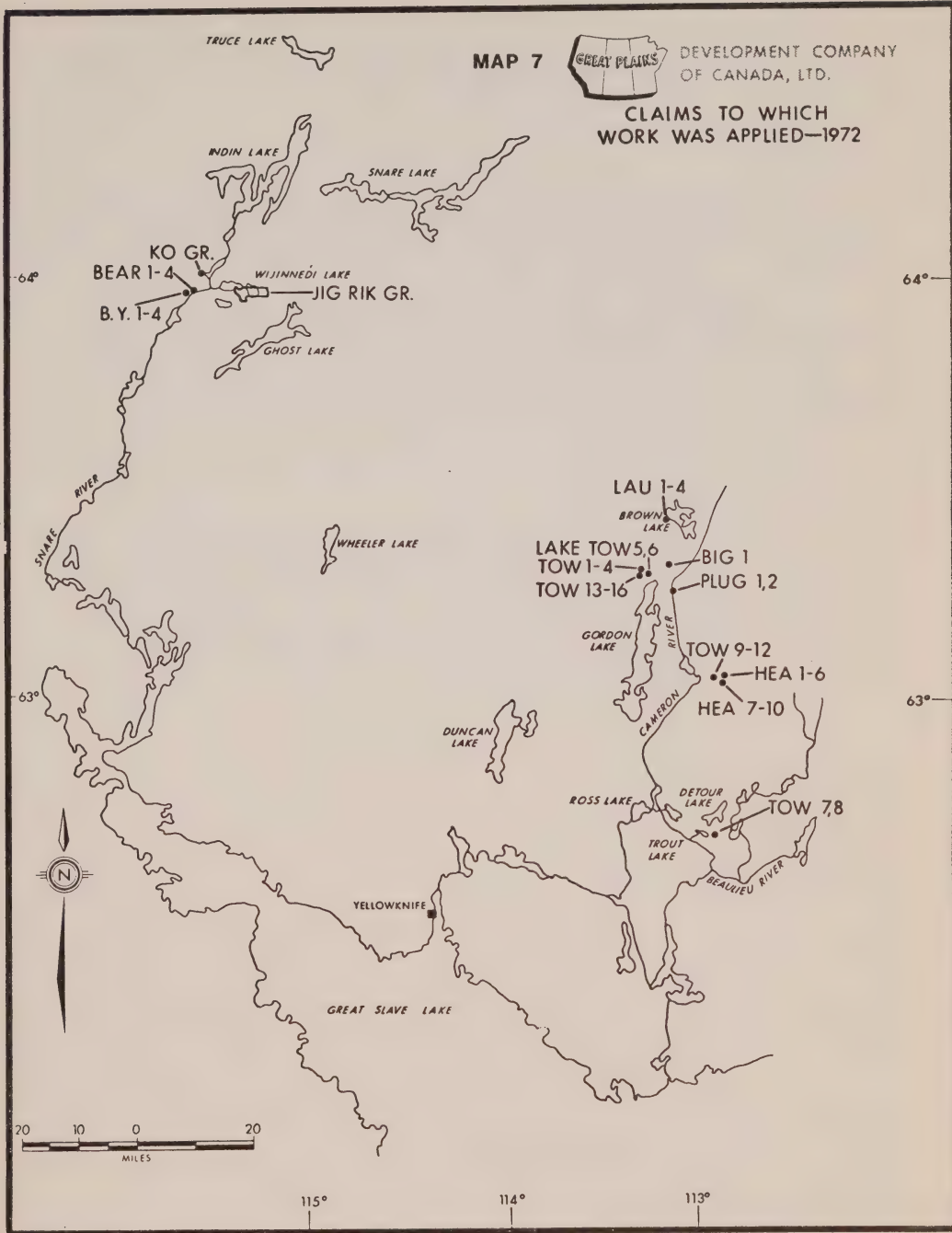
Fortier (1946); Henderson (1939, 1941, 1944); Jolliffe (1936)

Property:

BIG 1	A35392
TOW 1-16	A34788
HEA 1-10	A35471
PLUG 1,2	A35470, A35397

Location and Access:

These 29 claims are located in the Cameron River-Gordon Lake area approximately 70 miles northeast of Yellowknife



Map 7. Claim Locations, 1972, of Great Plains Development Company of Canada, Limited.

History:

The claims were staked during the 1972 field season to cover 11 EM anomalies which were located by a survey flown in July, 1971 (see Map 8, p. 101).

Description:

All areas are located in the Slave Structural Province of the Precambrian Shield. Rock units comprise Archean volcanic, sedimentary and intrusive types of the Yellowknife Supergroup.

The southern half of the HEA claims are underlain by granite and the northern half mainly by andesitic to dacitic volcanics. The contact zone between them contains 5 to 15% pyrite. Small portions of the claim groups are underlain by chloritic hornblende biotite schist or by slate interlayered with graphite rich rock.

Current Work and Results:

Between June 5th and August 24th, 1973, follow-up ground geological-geophysical surveys were carried out over promising EM anomalies which were located in 1971. Six anomalies are considered to be worthy of further testing: by shallow drilling to obtain unweathered material in one case, and by further geophysical and geological surveys in the other five cases.

LUK GROUP	Cu, Zn, Ag, Pb
Yellowknife Syndicate	85 I/10, 15
c/o Geophysics and Engineering	62°48'N, 112°34'W
Services Ltd.,	
Box 49, Toronto-Dominion Centre,	
Toronto 1, Ontario.	

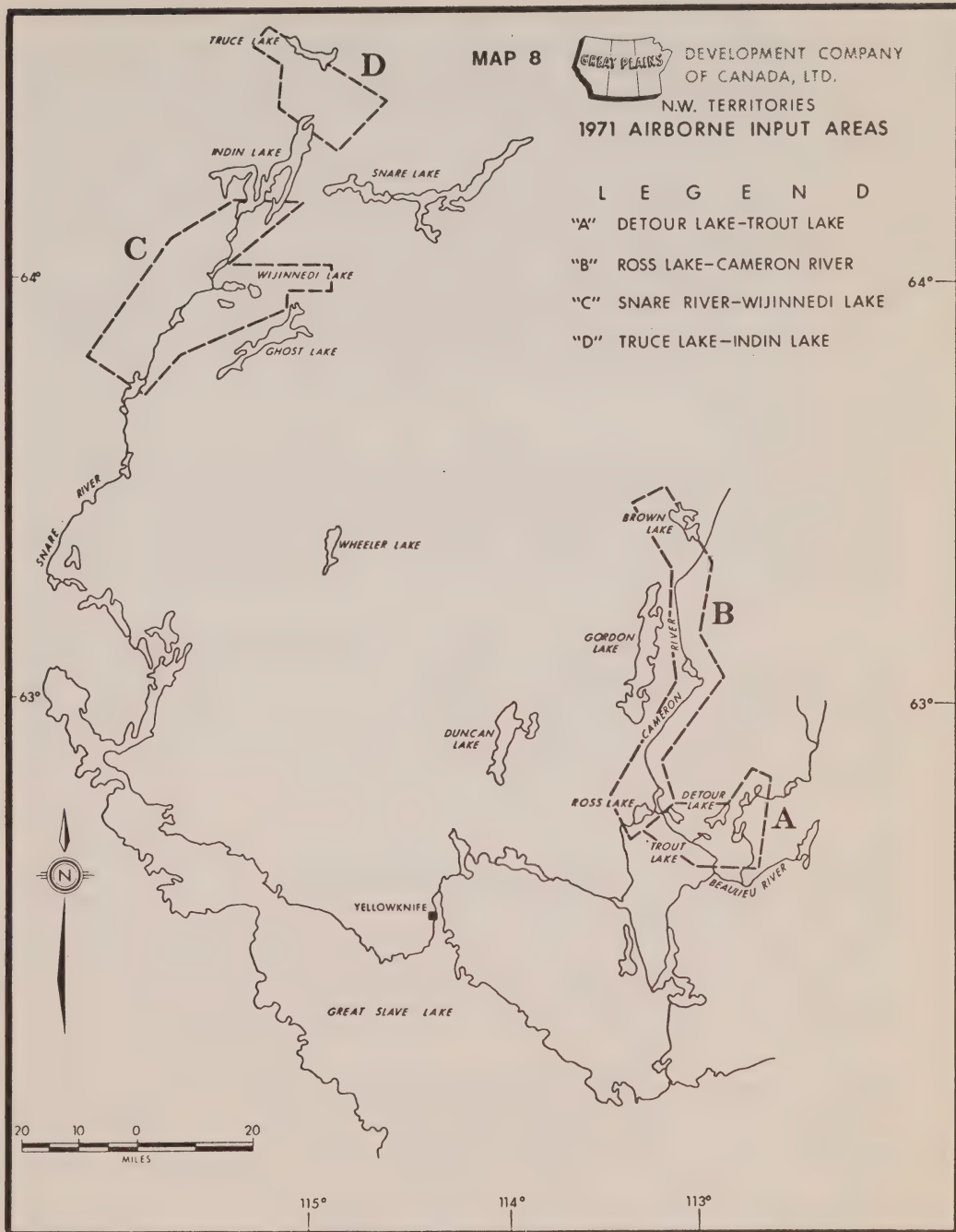
References:

Davidson (1972); Henderson (1941); Henderson and Jolliffe (1937); Henderson et al. (1972); Hutchinson (1955); Shegelski and Thorpe (1972)

Property:

LUK group comprised of 27 claims

LUK 1-6	A47486-91
LUK 7-9	A34198-200
LUK 10-25	A34301-16
LUK 27	A34197



Map 8. Airborne Input areas, 1971, of Great Plains Development Company of Canada, Limited.

Location and Access:

The LUK group is on the Beaulieu River in the Tumpline Lake area and the area immediately to the north (see Map 6, p. 96). It is separated from the KIL group to the south (described on p. 93) by the XL and XLX groups owned by Cominco Ltd.

History:

The LUK group of 27 mineral claims was staked in 1970 to cover EM anomalies disclosed by an airborne Dighem survey, part of the "Victory Lake Project", conducted during the summer of 1970. Portions of the LUK group were previously covered by the Cominco Ltd. XLX group that was explored in 1951 and later. (see KIL group, p. 93). The LUK group is separated from the KIL group by Cominco Ltd. 5 XL and XLX claims.

Description:

The LUK group is underlain by metamorphosed Yellowknife Supergroup supracrustal rocks that include knotted schists of sedimentary origin, mafic flows, and acid to intermediate flows and pyroclastics (Davidson, 1972). Sparse disseminations of copper and zinc sulphides are present in the southern part of the LUK group.

Garnet-amphibolite grade metamorphism is found along the contacts with granite intrusions and a high thermal gradient is suggested by the absence of garnet a short distance away from such contacts. Chlorite has been noted on the southern part of the LUK group which may indicate local retrogression along zones of weakness.

Evidence of a large northerly plunging anticline is found on the LUK claims indicating the sedimentary sequence containing the mineralization on the KIL, XL and southernmost LUK claims may be repeated on the west side of the group. The core of the anticline has been invaded by Redout Lake type granite, a pink pegmatitic, muscovitic granite (Davidson, 1972) (Hutchinson, 1955, p. 5). Much of the sedimentary rock on the west flank of the anticline is intensely granitized and poorly preserved.

A conductive graphitic schist zone that carries minor iron sulphides with traces of chalcopyrite, sphalerite and galena approximately marks the contact between volcanic and sedimentary bands. Strong deformation along this zone may mark an important fault.

Current Work and Results:

Prospecting, geological mapping, ground VLF-EM and magnetometer surveys were conducted over portions of the LUK group. Mineralized rock containing sparse copper and zinc sulphides was found on the south A grid while narrow widths of Zn, Cu, Pb and Ag sulphides occur on the north B grid. These zones correspond with EM conductors. The latter zone has a positive magnetic anomaly associated with it, the former does not.

MOS GROUP	Ag, Au
Precambrian Mining Services Limited	85 O/4
Box 190,	63°04'N, 115°31'W
Yellowknife, N.W.T.	

References:

Lord (1939); Wright (1950); Yardley (1949)

Property:

MOS 1-4 A30806

Location and Access:

The MOS claims are located on the south shore of Mosher Lake about 50 miles northwest of Yellowknife. Access is by float- or ski-equipped aircraft, or winter road from the Yellowknife or Great Slave Highway via Russell Lake.

History:

The ground was first staked as the WAYNE group by the Yellowknife Bay Exploration Syndicate in July, 1944. Sixteen holes totalling 922 feet were drilled in August, 1947, but as the best gold assay was 0.157 oz/ton the claims were allowed to lapse. They were restaked as the JST claims in November, 1960, for Giant Yellowknife Mines Limited. In September, 1963, Giant Yellowknife Mines Limited excavated 24 trenches and assayed numerous samples for gold: the highest value obtained was 0.23 oz/ton over 4 feet in trench No. 7 - the ground was again allowed to lapse.

MOS 1 and 2 were staked by N.J. Byrne in October, 1971, and MOS 3 and 4 were added in October, 1972. As of January, 1973 all 4 claims are in good standing until October, 1975.

Description:

The MOS group is underlain by two units of the Archean Yellowknife Supergroup. Rocks underlying the central part of the property are described as greywacke, slate, arkose, quartzite, phyllite, knotted mica schist, and sedimentary gneiss. The remainder of the area, strips on the east and west of this central section, are underlain by andesite, dacite, basalt, rhyolite tuff, agglomerate, breccia, amphibolite, and chlorite schist (Lord 1939).

Current Work and Results:

Six trenches with a volume of 37.6 cu. yds. were excavated in July 1972 and 35 samples were assayed for gold and silver. The highest assays were 0.285 oz/ton Au and 0.82 oz/ton Ag. Wm Knutsen reports that good widths averaging 0.07 to 0.15 oz/ton Au are indicated in a sulphide-bearing amphibolite band.

CON MINE	Au
Cominco Limited,	85 J/8
Trail, B.C.	62°27'N, 114°22'W

References:

Baragar (1962, 1963); Boyle (1961); Henderson and Brown (1966); Jolliffe (1936); Lord (1951)

Property:

CON 1-6 35707
CON 7-14 35699-706

Location and Access:

The Con-Rycon property is located on the west side of Yellowknife Bay about one-half mile south of Yellowknife town centre. The Rycon mine is about 2,000 feet east of the Con Mine. Both mines are operated from a common mining and milling plant.

History:

The CON group of 14 claims was staked for Cominco Limited in 1935 and exploration work was carried out by trenching, diamond drilling, and a 50-foot inclined prospect shaft. A vertical shaft was started near the prospect shaft in 1937 and a 100-ton per day mill was put into operation in August, 1938.

The mill capacity was increased to about 350 tons per day in March 1942.

The P and G group of 4 claims was staked by T. Payne and G. Latham in August, 1936. Ryan Gold Mines Limited was incorporated in February, 1937, to acquire the property. In August, 1937, Cominco Ltd. obtained a controlling interest in the property and in January 1938 incorporated Rycon Mines Limited to explore and develop the mine. The Rycon shaft was started in December 1938 and in 1939 the first ore from the mine was received at the Con mill. Crosscuts on the 500 and 950-foot levels were extended easterly about 1950 feet from the Con shaft to connect with the Rycon workings.

Milling stopped in September, 1943, due to wartime conditions but started again in August, 1946. In the meantime, development work was continued by a small crew. A geological investigation led by N. Campbell in 1944 resulted in the discovery on Con-Rycon and Negus properties of the Campbell system believed to be the faulted extension of the Giant system of ore-bearing shear zones. By the end of 1947 the Con shaft had been reopened and a crosscut started easterly on the 2,300-foot level towards the Campbell system, which was intersected in October 1948. The Campbell shear zone was brought into production in 1956.

From 1938 to 1972 inclusive, 4,174,448 tons of ore were milled from the Con-Rycon property. From this ore 2,432,789 ounces of gold were recovered.

Silver production for the period 1938 to 1948, inclusive, totalled 71,678 ounces from 501,376 tons milled.

Description:

The country rock is mainly Archean Kam Formation volcanic rocks with minor thin tuffaceous interlayers. A swarm of westerly dipping gabbroic dykes cut the volcanic rocks and are in turn cut by mineralized shear zones. Two major shear zones, the Con and the Campbell shear systems, have been exploited in the Con Mine. A third system, the Negus-Rycon strikes $N10^{\circ}E$ to $N25^{\circ}W$ and links the subsidiary Con system on the west with the Campbell system on the east, and thus is a cross-over system of smaller zones between the two principal ones; this system provided the initial production of the Rycon Mine.

The Con system, which is exposed at surface, was responsible for the initial development of the mine. This shear zone has an average strike of 008° and an average dip of $53^{\circ}W$.

It is reported to average about 50 feet in width but the productive section is a thickened part of the shear zone several hundred feet wide. The ore bodies are quartz lenses, pods, and replacement bodies mineralized with pyrite, arsenopyrite, stibnite, chalcopyrite, sphalerite, sulphosalts, galena, and gold. They formed around the nose of large unsheared horses of country rock at the points where the schist has been highly contorted, or at flexures in the zones.

The Campbell shear system, about 3,000 feet east of the Con system, abuts the West Bay Fault at a depth of about 2,300 feet and thus is not exposed on surface in the area adjacent to the mine. It is considered to be the faulted extension of the Giant system. The Campbell shear system strikes about 003° and dips 47°W. It ranges from a few hundred to more than a thousand feet in thickness and comprises several interlacing chlorite-sericite schist zones and included horses of unsheared country rock. The schist of these zones is locally carbonatized, sericitized, silicified, and mineralized with pyrite, arsenopyrite, sulphosalts and gold. As in the Con system, the ore bodies seem to have formed in the most contorted parts of the schist zones.

Current Work and Results:

The Cominco Ltd. Con Mine had an average payroll of 225 persons in 1971, and 210 persons in 1972. Thus it is one of the major factors in the economic life of Yellowknife.

TABLE V
Production and Development Data
Con Mine

Year	Drifting Feet	Raising	Diamond Drilling	Average Payroll
1971	6,382	2,017	58,836	226
1972	4,958	3,107	45,512	210

Year	Tons Milled Daily	Total Tons Milled	Grade Au oz/T	Au oz. Produced
1971	434	158,480	0.576	91,281
1972	450	164,776	0.644	106,060

By the end of 1972, the Con and its associated mines had driven more than 52.5 miles of underground workings including over 6,500 feet of shafts, 41.5 miles of drifts and 9.8 miles of raises. Slightly more than one million feet of underground drilling had been completed and well over 7 miles of surface drilling, the latter during the earlier life of the mine.

In January, 1971, the Bluefish powerhouse was destroyed by fire and as a result of the power shortfall, exploration and development was curtailed on the lower levels. Drifting from the 4900 foot level of the C-2 shaft was recommenced following the completion of power plant repairs in March. During October to December the mill operated at 470 tons a day with slightly lower grade ore being processed. Stopes above the 4900 foot level were enlarged and development below this level curtailed.

As a result of the dramatic rise in the price of gold, in 1972, a detailed study of the mine's future was undertaken. Efficient and economical production from levels below 4900 feet was not considered possible with the present 3 shaft system. A new shaft capable of hoisting the deeper ores directly to the surface was one logical solution and an extensive program commenced in 1972 to establish sufficient ore reserves below the 4900 foot level to warrant a new shaft and a concomittant increase in mine production and mill throughput to 700-800 tons per day.

GIANT MINE
Giant Yellowknife Mines Ltd.
7 King Street East,
Toronto, Ontario.

Au, Ag
85 J/9
62°30'N, 114°22'W

References:

Boyle (1961); Henderson and Brown (1966); Lord (1951); Thorpe (1966)

Property:

GIANT 1-19 32982-33000
GIANT 20 35601
GIANT 21 36975

Location and Access:

The Giant Mine is located $2\frac{1}{4}$ miles north of the centre of Yellowknife and most of the workings lie within the city limit.

History:

Exploration and staking of the lower part of the Yellowknife River basin was begun in 1933, by Bear Exploration and Radium Limited. The company incorporated Yellowknife Gold Mines Limited in March, 1934, to acquire some of the claim groups. This company in turn incorporated Burwash Yellowknife Mines Limited in October, 1934. The GIANT group of 21 claims was recorded in 1935 by C.J. Baker and H.M. Maie for Burwash Yellowknife Mines Limited. Bear Exploration through its subsidiaries, optioned a 60% interest in the GIANT group, in 1937, to Anglo-Huronian Limited and Howey Gold Mines Limited who were to supply funds for exploration and development.

Giant Yellowknife Mines Ltd. was incorporated in August, 1937, to acquire and develop the property. Some exploration work was carried out during the period 1936-38 and the outcrop of the D.W.C. zone was discovered. A re-examination of this discovery, in 1941, led Frobisher Exploration Company Limited to acquire control of Giant Yellowknife Mines Ltd. in June, 1943.

A.S. Dadson examined the Giant Property in 1943 and suggested that the drift-filled Baker Creek Valley, an area neglected by previous exploration might be underlain by a major system of gold-bearing shear zones. Diamond drilling to test this hypothesis commenced in January, 1944, and over the next few years some 15 mineralized shear zones and veins were located. A 500 ton per day mill was put into operation in May, 1948.

In June, 1960, Giant Yellowknife Mines Ltd. and Consolidated Sudbury Basin Mines Limited amalgamated to form Giant Yellowknife Mines Ltd. By 1971, underground development extended over a vertical distance of 2,000 feet and a horizontal distance of about 10,000 feet; the mine is serviced by 11 levels and 3 shafts, and two separate shafts were sunk to develop the Ole zone and the Brock veins. Mill capacity was increased to 700 tons per day in 1952, and gradually increased to 1,000 tons per day in 1960.

The 7 LOLOR claims were staked in 1936, and a controlling interest in the property was purchased by McVittie Graham Mines Limited in 1937. Conwest Exploration Company Limited was

incorporated in June 1938 to acquire the assets of McVittie Graham Mines. In 1948 Giant Yellowknife Mines Ltd. acquired an 87½% interest in the LOLAR group. During the mid 1950's some work was done by Giant on the 750-foot level as an extension of the Giant GB zone development. Work was resumed in 1964 and some development ore was treated in 1965; mine production commenced officially on October 1, 1967.

From 1948 to 1970, inclusive, 7,258,355 tons of ore from GIANT and LOLAR properties were milled. From this ore 4,468,690 ounces of gold were recovered. Silver recovered between 1948 and 1966 totalled 429,363 ounces from 5,412,602 tons milled.

Supercrest Mines Limited which is jointly owned by Akaitcho Yellowknife Gold Mines Limited and Giant Yellowknife Mines Ltd. was incorporated in October, 1964, to acquire the property immediately north of the GIANT claims. A drift to the Akaitcho ore zone was begun from the 750-foot level of the Giant Mine. Exploration and development work on the Akaitcho ore zone was carried on during 1965 through 1967 and the 750-foot level was extended to a point immediately below the collar of the Akaitcho shaft. Production began on October 1, 1967.

Description:

The underlying rocks are nearly vertically dipping Archean meta-andesites and meta-basalts of the Kam Formation. These northeasterly striking volcanic flows are cut by dyke swarms and irregular shaped bodies of gabbro. Mineralized shear zones containing the Giant ore bodies cut both volcanic rocks and gabbro dykes, and in turn are cut by diabase dykes, and by late faults, the West Bay Fault being the most important. The Giant system of shear zones within which occur the principal known ore bodies, has been traced about 12,000 feet north-northeast from the north-northwesterly trending West Bay Fault. The Giant system is made up of sub-parallel, interlacing, chlorite-sericite schist zones winding about and surrounding horses of unsheared greenstone. About 15 principal ore-bearing shear zones have been located and explored; the maximum width of the zones may exceed 150 feet. The ore bodies are irregular, lenticular parts of the shear zones ranging in width from 3 to 50 feet and are composed of 30 to 90 per cent fine-grained quartz and sericite schist, and about 7 per cent metallic minerals. The most abundant metallic minerals are pyrite and fine-grained arsenopyrite; others include stibnite, sphalerite, chalcopyrite, galena and in places visible gold.

Current Work and Results:

Giant Yellowknife Mines Ltd. maintains an active exploration program which includes many exploration ventures in various parts of the Territories, a separate program on the non-producing areas of the home property at Yellowknife and on adjacent claims in the Yellowknife greenstone belt, and extensive underground exploration and development to explore the productive shear zones around the Mine openings. Prior to the upward swing in the gold price only 18 months ore reserves were reported for the Giant Mine. Since then, extensive re-evaluation of lower grade sections, and a general decline in cut-off grades have materially improved this picture.

The Brock shaft on the Baker Vein, to the west of the main workings was reopened in mid 1972 and some very high grade ore was located. An adit was driven into the hillside to intersect the old workings. Exploratory drilling across the main part of the greenstone belt was continued with three holes totalling 4099 feet drilled from three separate locations east of the C-shaft. One hole was collared through the ice 200 feet from the shore of Back Bay, a second was located near the shore, and the third approximately 1000 feet to the northwest. No results of immediate economic importance were forthcoming.

Underground drilling was increased significantly during 1972, mainly to explore areas of the mine where low grade mineralization had been indicated during earlier work. Much of this work was done in the area around the A-shaft which was renovated in late 1971. Other forms of exploration and development remained the same or decreased slightly.

TABLE VI
Production and Development Data
Giant Mine

Year	Drifting	Development		
		Raising	Diamond Drilling Underground	Surface
1971	5,646	5,402	136,565	10,872
1972	5,225	5,964	230,383	11,970

Year	Tons Mines	Production		Payroll Daily Average
		Grade Au oz/T	Au oz. Produced	
1971	403,819	.539	217,702	388
1972	401,522	.501	201,185	381

Ore reserves should increase slightly in the near future as at present(1973) more ore is being located than is being mined.

G GROUP	Au
Giant Yellowknife Mines Ltd.	85 J/9
P.O. Box 40,	62°39'N, 114°18'W
Commerce Court West,	
Toronto, Ontario.	

References:

Jolliffe (1938); Lord (1951); Thorpe (1972a)

Property:

G 1-10 N48801-10

Location and Access:

The G group lies at the northeast end of the Northbelt Yellowknife Mines Ltd. holdings one mile due west of the north end of Prosperous Lake. An all-weather road extends to within 3½ miles of the south end of the G group and a winter road

extends beyond this to within a half mile of the group. Banting and Homer Lakes are suitable for landing aircraft.

History:

G group claims were staked in 1971 to cover ground that had previously been covered by Fenix Mines Limited's group which lapsed in 1971.

Drilling, trenching, and geological and geophysical surveying was carried out on the claims in 1960, 1961, 1962, 1963, and 1966. Previously the area was held as the HOMER group (Jolliffe 1938), at which time considerable trenching was done.

Description:

Jolliffe (1938 p. 32), Lord (1951 p. 177) and Thorpe (1972a p. 40) have adequately described the geology of the area covered previously by the HOMER and P.C. groups. Briefly the G group is underlain by northeasterly trending steeply to vertically dipping greenstones of the Yellowknife Supergroup. Quartz porphyry dykes with associated precious metal and base metal sulphide mineralization have elicited considerable interest in the past, but economic grades and tonnages have not been found. Currently interest is centred on exploring the more sheared portions of the volcanic rocks for quartz-carbonate gold ore bodies, such as those in production farther south.

Current Work and Results:

Structural and geological mapping and some bedrock geochemistry were performed in 1971 and 1972.

Five "tectonic" rock types ranging from a massive relatively undeformed greenstone (#1) to a strongly foliated type (#5) were defined and have been delineated on a "structural rock distribution map", which also shows faults, that are abundant and widespread, and "granitic rock" to the west and "sedimentary" rock on the east borders of the claim group. Samples were taken throughout the area of the claims for structural and geochemical evaluation.

Some structural anomalies were defined that are considered to warrant exploration by rock geochemistry and prospecting. An investigation of the porphyry-greenstone contact zone for precious and base metals is recommended in the report.

BY and BEAR CLAIMS

Great Plains Development Company
of Canada Limited
736 - 8th Avenue Southwest,
Calgary, Alberta.

85 O/13

63°52'N, 115°40'W

References:

Fortier (1946); Jolliffe (1936); McGlynn and Ross (1962)

Property:

BY 1-4	A34804-07
BEAR 1-4	A34800-03

Location and Access:

The claims are located in the Wijinnedi Lake area approximately 100 miles north-northwest of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

A total of 37 claims were staked during the 1972 field season to cover 11 airborne EM anomalies which were located during an airborne EM survey flown in July 1971.

Description:

The BEAR and BY claims, located in the Slave Structural Province, are primarily underlain by hornblende schist, probably metavolcanic rocks of the Archean Yellowknife Supergroup. Metasedimentary units and intrusive rocks of the same age are also present. The geology of this area is currently being reassessed and remapped by Geological Survey geologists as part of the Bear-Slave project.

A number of small occurrences of pyrite and pyrrhotite have been found on the claims.

Current Work and Results:

During the summer of 1972 follow-up ground geological-geophysical surveys were carried out over two EM anomalies, which were located in 1971.

This work indicates the anomalies were caused by graphitic zones weakly mineralized with pyrrhotite and pyrite unlikely to have any economic potential.

RIK, JIG and KO CLAIMS
Great Plains Development Company
of Canada Limited
736 - 8th Avenue Southwest,
Calgary, Alberta.

Cu
85 O/14; 86 B/3,7
63°57' - 64°20'N
114°45' - 115°29'W

References:

Hornal et al. (1974); Lord (1939); Stanton (1947); Stanton et al. (1948); Wright (1954)

Property:

RIK 1-230	A34548-777
JIG 1-30	A34386-415
JIG 31-41	A34537-47
KO 81-100	A34181-200
KO 101-104	A36081-84

Location and Access:

The JIG claims are directly south of Wijinnedi Lake (85 O/14), the RIK claims east of Indin Lake (86 B/7) and the KO claims on the Snare River (86 B/6). Access to the survey areas is by float- or ski-equipped plane.

History:

The KO and JIG claims were recorded by Rodger Voisine on December 20th, 1971. The RIK claims were recorded on August 10th, 1971 by J. Labonte. All claims (JIG, KO and RIK) were subsequently transferred to Great Plains Development Company of Canada Limited. There is no record of any previous work done in this area.

Description:

The Wijinnedi Lake area is underlain by rocks of the Yellowknife Supergroup, the oldest of which are intermediate to basic volcanic rocks. Pillows, which occur locally on the southeast shore of Wijinnedi Lake appear to have been deformed during metamorphism. The predominant rock type is garnetiferous amphibolitic schist. Parts of the contact zone between the sedimentary and volcanic rocks along the south shore of Wijinnedi Lake, near the northeast shore of Peaks Lake, are highly sheared, carbon coated and iron stained garnetiferous schist with pyrrhotite and pyrite bearing amphibolites.

The Indin Lake area is underlain by recrystallized and highly altered basic to intermediate layered volcanic rocks.

Current Work and Results:

In November and December 1971, ground magnetometer and EM surveys were conducted in the claim areas. Over thirty-four line-miles were surveyed with Scintrex MF-1 Fluxgate magnetometer and Ronka EM-16 and 10.8 line-miles were completed with the Ronka EM-17, horizontal loop equipment, to investigate eleven anomalies located by a previous airborne survey. Highly conductive zones of varying magnetic intensity in the Wijinnedi Lake area may be caused by graphite or massive sulphides. Extensive ground follow-up was done during 1972 but no results have been reported.

FARKLE, JAN, PETER and VAN CLAIMS	Cu, Zn, Ag
Freeport Oil Company	86 B/3,6,7
(Alberta) Limited	approx. 64°12' - 64°29'N
1320, 25 King Street West,	114°52' - 115°15'W
Toronto, Ontario.	

References:

Fortier (1949); Stanton et al. (1948); Tremblay et al. (1954)

Property:

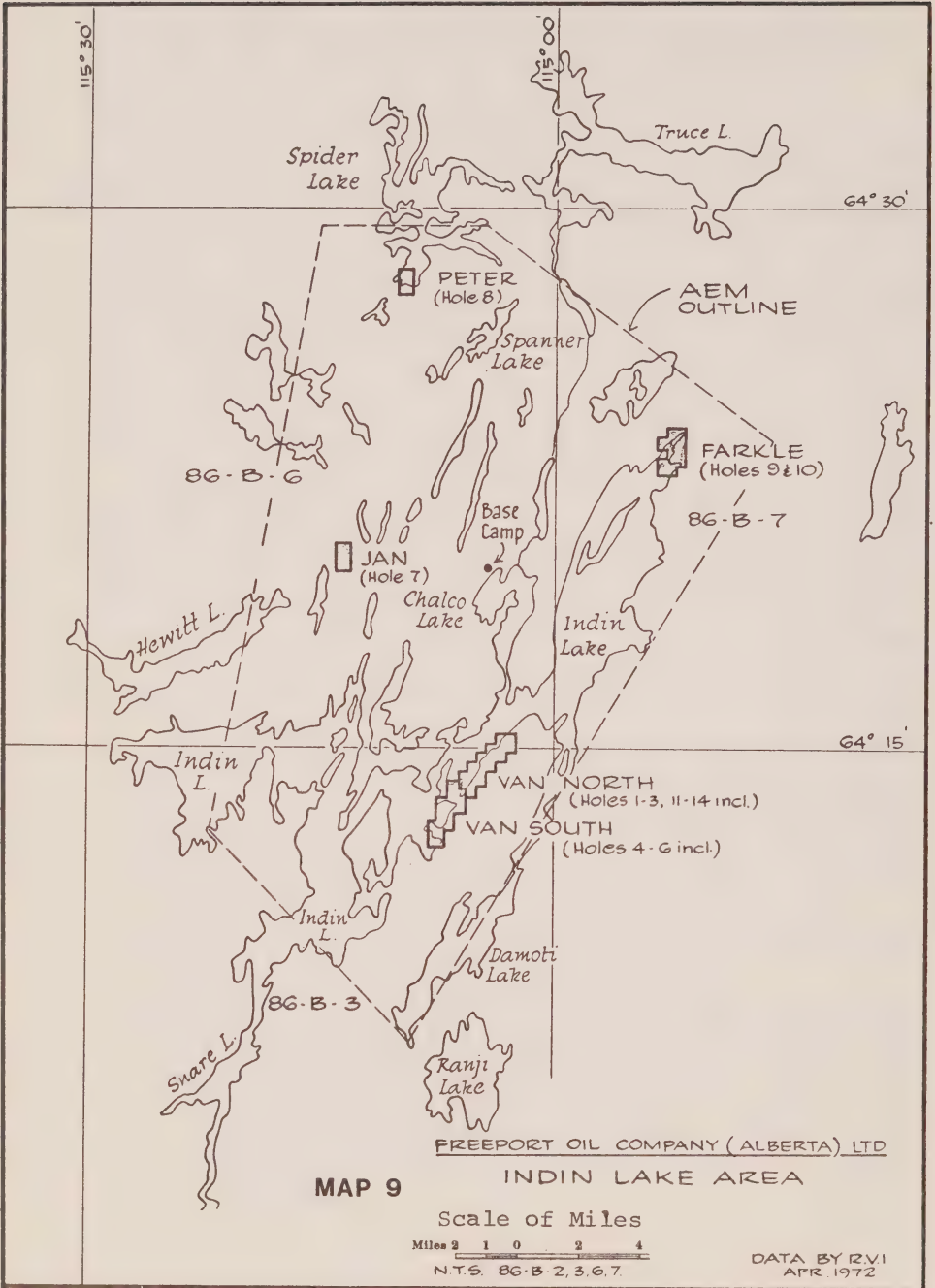
FARKLE 5-17	A16770
JAN 1-6	A16737
PETER 1-7	A16749
VAN 1-36	A16809

Location and Access:

The FARKLE claims lie at the extreme northern tip of Indin Lake, the JAN claims lie to the northeast of Lex Lake, the PETER claims occupy land and water at the southern tip of Spider Lake, and the VAN claims are located on the southeast side of Indin Lake (see Map 9, p. 116). The area containing these claims is about 120 miles north-northwest of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

In April, 1970, an airborne geophysical survey was undertaken by Seigel Associates Limited in the Indin Lake area on



Map 9. Indin Lake area showing Location of Freeport Oil Company (Alberta) Limited Claims.

behalf of Freeport Oil Company (Alberta) Limited. The surveys included EM and magnetic measurements and resulted in the location of several conductive zones some with coincident magnetic responses.

During the course of the survey, targets of interest were selected and staked by Freeport Oil Company (Alberta) Limited.

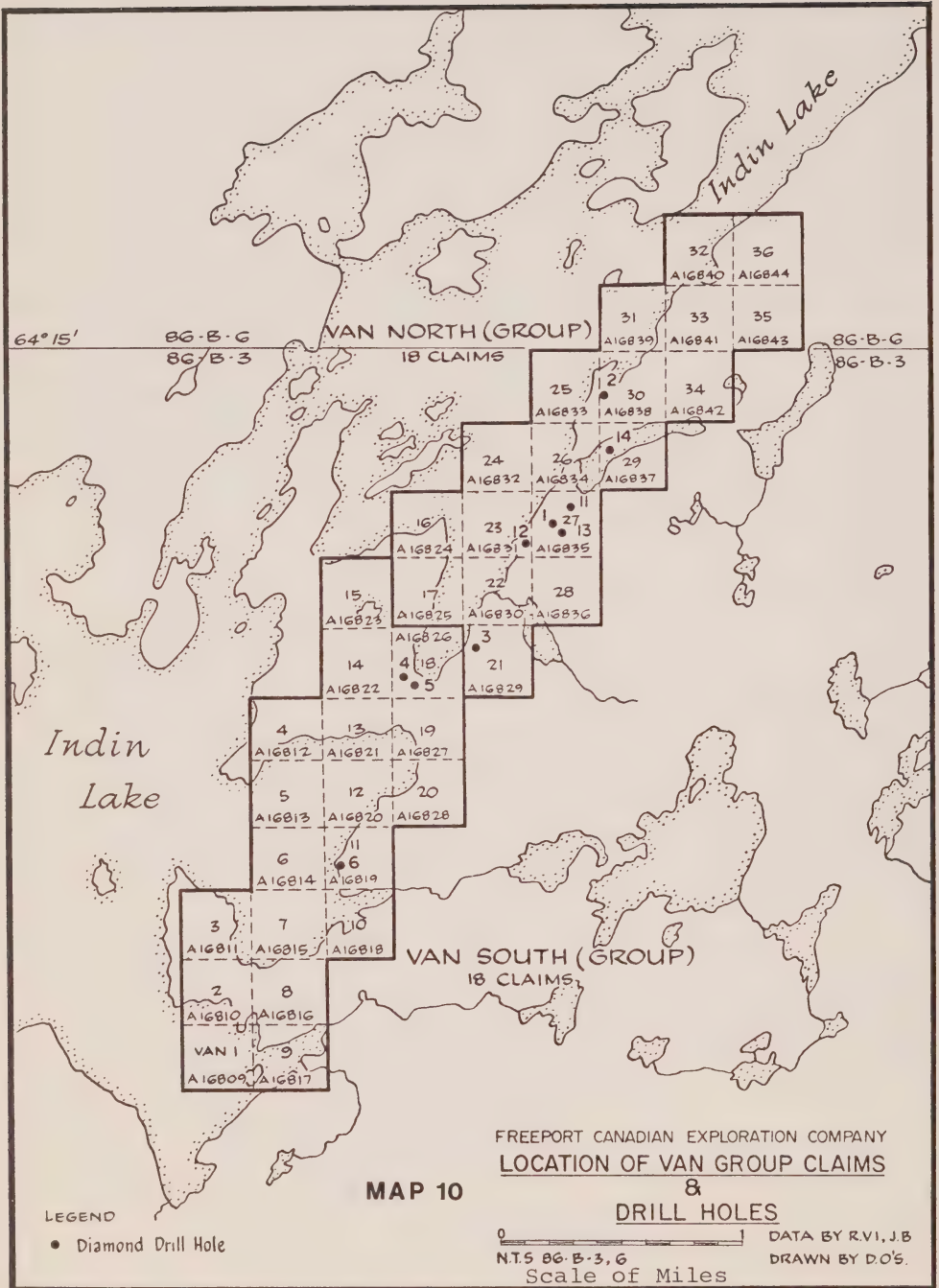
Description:

The area is underlain by highly folded and faulted felsic volcanic and metasedimentary units of the Archean Yellowknife Supergroup. Mineralization occurs within graphitic argillite, some greywacke, sandstone and felsic volcanics including tuff, and consists of scattered pyrite and pyrrhotite which locally comprises 25% of the rock, with some sphalerite and chalcopyrite and traces of galena. Gold has been found in the area with minor pyrite and chalcopyrite in quartz veins and stringers that occur in shear zones or fractures in basic volcanic rocks.

Current Work and Results:

During the summer of 1971, seven holes totalling 2,275 feet were drilled on several electromagnetic conductive zones on claims VAN 11, 18, 21, 27 and 30 (see Map 10, p. 118) and JAN 5 (see Map 9, p. 116). Mineralized intersections occurred at depths ranging from 71 to 334.5 feet in the seven holes and the widths of the zones ranged from 1 to 20 feet. Assay values ranged from 0.005 to 0.98% Cu, 0.004 to 3.93% Zn, 0.12 to 5.05 oz/ton Ag and up to 0.1 oz/ton Au. The widest intersection in hole 6, from 170 to 190 feet, graded: 0.04% Cu, 0.91% Zn, and 2.53 oz/ton Ag.

In March and April 1972, seven additional holes totalling 1,969 feet were drilled to test anomalies on claims PETER 7, FARKEL 7 and 9, VAN 27, 23, and 29. Mineralized intersections occurred at depths ranging from 41.0 to 390 feet and assay results were in the ranges from 0.01 to 0.32% Cu, 0.02 to 0.82% Zn, 0.01 to 1.32 oz/ton Ag and traces to 0.003 oz/ton Au.



Map 10. Indin Lake area showing Location of Van Group Claims and Drill Holes.

JINGO GROUP
Barons Oil Limited
907 - 3rd Avenue South,
Lethbridge, Alberta.

Au
86 B/12
64°35'N, 115°32'W

References:

Fortier (1949); Lord (1942); McGlynn (1963); Stanton (1947);
Stanton et al. (1948); Tremblay et al. (1954)

Property:

JINGO 1-17 N50588-600, N50801-04

Location and Access:

The property, is approximately 2 miles east of the north end of Arseno Lake, about 150 miles northwest of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

The JINGO claims were originally staked by J.D. Mason in July 1939 as the DINGO group. Mercury Gold Mines Ltd. took control of the property in 1940 and performed work which included extensive stripping and trenching on veins, some bulk sampling and approximately 12,000 feet of drilling. Numerous quartz veins, some gold-bearing, were uncovered.

In December 1963 the property was restaked by J. Heriman as the JINGO group on behalf of Mr. Kruger.

Description:

The claim group is underlain by Yellowknife Supergroup metavolcanics which are in contact to the east with an intrusive quartz monzonite that is weakly gneissic. Quartz veins trend nearly parallel to the strike of the metavolcanics, but diorite and aplite bodies bear a dyke-like relationship to the volcanics.

The quartz veins, contain auriferous pyrite, native gold and minor chalcopyrite, pyrrhotite and galena.

Current Work and Results:

During July, 1971, the JINGO group was geologically mapped and pre-existing maps and diagrams of the area were updated and revised. The above geological summary is partly derived from this work.

Several trenches were grab-sampled and assayed for gold: many of the trenches were caved-in and overgrown.

ASP CLAIMS
Shield Resources Ltd.
9305 - 169th Street,
Edmonton, Alberta.

Au
86 H/9
65°40'N, 112°11'W

References:

Bostock (1967); Craig (1960); Lord (1941, 1951)

Property:

ASP 1-23 A46778-800
ASP 24 T26100

Location and Access:

The ASP claims are located in the Itchen Lake area approximately 225 miles north of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

George Braden staked the 24 ASP claims in August, 1972, on showings located during a general prospecting program conducted for Shield Resources Ltd. in the Contwoyto-Itchen-Point Lakes region.

Description:

The region is underlain by Yellowknife Supergroup volcanic and sedimentary formations surrounded by intrusive granitic rocks. Sulphide rich iron formations that contain as much as 30% pyrrhotite, arsenopyrite and loellingite, and small amounts of gold with magnetite and assorted amphiboles have been reported from various parts of this region. These rocks are the hosts of important gold occurrences in the Contwoyto Lake area.

Current Work and Results:

No work was recorded on these claims in 1972, and presumably nothing was done during that year.

BEAR PROVINCE

(Western part
Precambrian Shield)

BL CLAIMS	Au
Shield Resources	86 C/13
9305 - 169th Street,	64°48'N, 117°40'W
Edmonton, Alberta.	

References:

Balkwill (1971); Fraser (1967)

Property:

BL 1-46 T64454-99

Location and Access:

The BL claims are located north of Isabella Lake approximately 200 miles northwest of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

In 1969 Shield Resources Ltd. acquired the claims to cover an area in which a number of copper showings had been located. Work during that year included mapping, trenching, sampling and limited test drilling. An assay of a trench sample gave: 0.75% Cu (reported).

Description:

Extensive chalcopyrite mineralization is reported to underlie a gossan zone in acid porphyritic tuffs that are said to resemble those at Noranda. These volcanic rocks are adjacent to or in contact with dark green, foliated, chloritic feldspar porphyry, possibly of intrusive origin.

Current Work and Results:

The mineralized areas were explored by magnetometer and EM surveys during the summer of 1971.

OS and ZEB CLAIMS	Cu
Seaforth Mines Limited	86 D/15
c/o Precambrian Mining Services Limited	64°53'N, 118°32'W
Box 190,	
Yellowknife, N.W.T.	

References:

Kidd (1936); Norris (1965); Thorpe (1966)

Property:

OS 1-42	A38391
ZEB 1-20	A38371-90

Location and Access:

The claim groups are located in the Hottah Lake area approximately 40 miles southeast of McVicar Arm on Great Bear Lake and about 210 miles northwest of Yellowknife.

Present access is by float- or ski-equipped aircraft but tug and barge transportation via the Mackenzie River and Great Bear Lake would be possible; and large-wheeled aircraft (winter months) could land on Hottah Lake ice. A connection with the winter truck route running from Fort Rae on the Mackenzie Highway to Great Bear Lake could be readily established.

History:

Previous activity in the area includes the following: staking in June, 1965, of the 45 FNS claims by Dr. G.A. Collins and F.M. Smith and a two week study of Paleozoic sediments in the area by Max Richards and Ted Muraro, for Cominco Ltd. in 1967.

Prospecting and sampling were carried out on the west side of Hottah Lake for the Far North Syndicate between April 15 and June 1965. Fifty samples were taken and analyzed for cold extractable metals by the dithizone buffer method. Heavy metal anomalies were indistinct, not reproducible and restricted to an area where copper stains were visible on the rock surfaces.

The geological survey by Far North Syndicate established that copper mineralization occurs over a large area but is restricted to the basal Paleozoic section, specifically the Ferroan-dolomites.

Forty-five FNS claims were transferred to Consolidated Proprietary Mines Holdings Limited and were later allowed to lapse. The OS and ZEB groups were staked in 1972.

Description:

The west shore of Hottah Lake is underlain by nearly flat-lying Paleozoic sedimentary rocks that blanket the undulating surface of the Precambrian basement which is locally exposed as prominences. The basal Paleozoic consists of porous white sandstone, the upper section of which is heavily iron stained. Above this lies a succession of shale, bituminous dolomite and more shale. The 200-foot thick dolomite horizon contains chalcOPYrite as disseminations and as fracture-fillings.

Current Work and Results:

From June 7 to June 28, 1972 the area (which has only 10 per cent outcrop) was again geologically investigated. A magnetic survey was done with Scintrex MF-2 Fluxgate magnetometer along east-west lines spaced at 500 feet, with a station interval of 100 feet, over the northern four-fifths of the OS and ZEB claim groups.

Six magnetic highs were located, five being in the southwest corner near Banana Lake. The anomalies may represent structures in the Precambrian basement, possibly domes or faults.

BIRCH and CC GROUPS	Cu, Ag
Barons Oil Limited	86 E/9
907 - 3rd Avenue South,	63°34'N, 118°00'W
Lethbridge, Alberta.	

References:

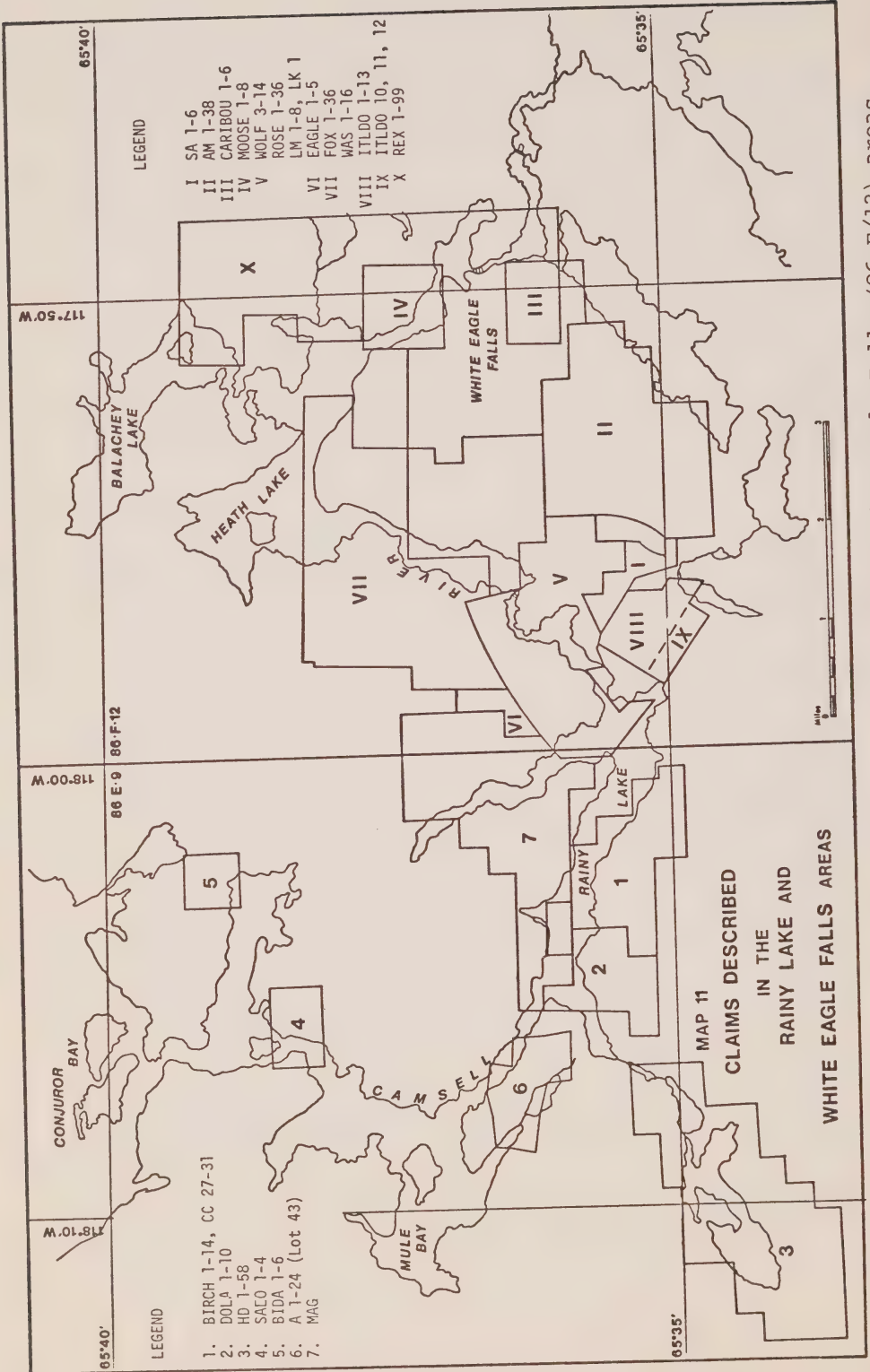
Badham (1972); Lord (1951); Lord and Parsons (1952); Murphy and Shegelski (1972)

Property:

BIRCH 1-14	A47561
CC 27-31	A47727

Location and Access:

The BIRCH and CC claim groups are located on the south side of Rainy Lake (see Map 11, p. 124), about 250 miles north-northwest of Yellowknife. Access is by ski- and float-equipped aircraft, by wheeled aircraft using the gravel landing strip at Norex, by winter road and by water in the summer.



Map 11. Location of Claims in the Rainy Lake (86 E/9) and White Eagle Falls (86 F/12) areas.

History:

The claims were staked by J.D. McGill, D. Saare, and J. Wilkinson in December 1970. They were transferred to Barons Oil Limited in April 1971. The early history of the area of these claims is described by Lord (1951, pp. 91-93).

Description:

Rocks underlying the BIRCH and CC property include feldspar-porphyry flows and breccias and sediments of the Aphebian Echo Bay Group, which are all cut by dykes of quartz-feldspar porphyry and felsite. Faults and fractures strike in three directions -- northeast, north and east.

Pyrite, chalcopyrite, bornite, malachite and hematite generally occur in feldspar-quartz veins and in small calcite veins along east-west-trending, nearly vertical fractures.

Current Work and Results:

In the summer of 1971 the BIRCH and CC claims were geologically mapped. Zones of mineralization discovered during the mapping were trench and sampled. The best assay obtained was: 0.5 oz/ton Ag.

DOLA CLAIMS

A. Hanson	86 E/9
c/o D.A. Saare,	65°35'N, 118°05'W
2101 Lorraine Avenue,	
Coquitlam, B.C.	

References:

Kidd (1932); Murphy and Shegelski (1972)

Property:

DOLA 1-10 T97171-80

Location and Access:

The claims are located in the Camsell River area (see Map 11, p. 124) approximately 250 miles north of Yellowknife. Access is by float- or ski-equipped aircraft. A winter road passes directly beside the claims, on the north boundary. Barge transportation to Hay River is also available.

History:

The claim area was staked previously as the AG 1-8 claims by J.D. Mason. The group was investigated in July, 1969, as part of a ground magnetometer and EM survey. Four areas were recommended for prospecting and geological mapping but apparently this work was not done prior to the claims lapsing. A. Hanson staked the ground as the 10 DOLA claims in December 1971.

Description:

The DOLA claim group is underlain almost exclusively by andesite and sandy tuff (Murphy and Shegelski, 1972). The andesite, which is located mainly in the southeast part of the property, usually contains feldspar and rarely hornblende phenocrysts in a purple or black fine-grained matrix. The northern part of the claim group is underlain by sandy tuff.

The only mineral zones found on the property by Murphy and Shegelski (1972) were two small deposits of magnetite.

Current Work and Results:

A geological study was done on the property during the 1972 field season.

HD CLAIMS
Duke Mining Limited
615 - 6th Street,
New Westminster, B.C.

Au, Co, Cu, Bi
86 E/9
65°34'N, 118°10'W

References:

Murphy and Shegelski (1972); Parsons (1948)

Property:

HD 1-58 T68701-58

Location and Access:

The HD claims are located in the Camsell River area (see Map 11, p. 124) approximately 250 miles north-northwest of Yellowknife. They can be reached by winter road or by barge during the summer and by float- or ski-equipped aircraft.

History:

In 1968 H. Arden staked the 58 HD claims. In August of the same year, they were transferred to D'Arcy Edward Arden who optioned the claims to D.E. Snyder, H. Stanfield, J. Myers, A. Harter and L. Mayers later that month. In September, 1968, the claims were assigned to Republic Mining Limited who in September, 1970, optioned the property to Duke Mining Limited.

In 1969-70 three holes were drilled on the main showing and two on a secondary one. The best core intersection assayed: 1 oz/ton Ag and 1.89% Cu over 2 feet.

Description:

The HD claims cover a portion of a mile-wide exposure of acid volcanics and minor greenstone and bedded tuff of the Lower Echo Bay Group that have been intruded by alkalic igneous rocks. On the south, the volcanic belt is bounded by medium-grained biotite granite and on the north side by coarse-grained syenite. The main showing is in a carbonate vein, in tuff, near the granite contact. Exposure is poor but rusty boulders are common in the overburden. The best sample obtained from this showing, assayed: 22.26% Bi, 1.95% Co, 2.18% Cu and 0.2 oz/ton Ag.

A second showing was found in syenite, where vein exposures are limited by extensive overburden. The best sample from this showing, assayed: 0.05% Bi, 1.12% Co, 0.54 oz/ton Au and 0.7 oz/ton Ag.

Current Work and Results:

Two separate magnetometer and EM surveys conducted in January and February, 1971, defined a weak conductor.

SACO CLAIMS

Saco Mining Corporation Limited
900 McLeod Building,
Edmonton, Alberta.

Cu

86 E/9

65°39'N, 118°03'W

References:

Murphy and Shegelski (1972)

Property:

SACO 1-4 A38630-33

Location and Access:

The claims are situated 3.75 miles northeast of the Terra Mine at the northeast end of an easterly trending arm or bay, close to the mouth of the Camsell River (see Map 11, p. 124). Access is by float- or ski-equipped aircraft which operate out of Yellowknife 248 miles to the south-southeast. An unpaved airstrip suitable for a DC3 is located 9 miles south on the Norex property. A similar strip is partly constructed on an esker one mile north of the claims. Barge service connecting with Hay River along the Mackenzie River can be arranged from July to October.

History:

The discovery of large gossan zones led to the staking of the SACO group by Frank Camsell, on behalf of Saco Mining Corporation, in August, 1972.

Description:

Volcanic and sedimentary rocks of the Aphebian Echo Bay Group underly the SACO claims. The Alter Fault and its associated quartz stockwork strike northeasterly through the claim group. Mineralization is associated with this fracture which is one of a set of northeasterly trending faults that are commonly barren of mineralization.

The showing lies 100 feet north of the shoreline on an isolated rock knoll, that is roughly 40 feet long by 25 feet wide. A trench 25 feet long, 20 feet wide, and 5 feet deep exposes disseminated chalcopyrite and pyrite that is also present throughout the whole outcrop. The host rock, a fine to medium grained, dark grey to greenish grey, highly siliceous material, is thought to be a tuff.

Current Work and Results:

Assessment of this showing, in 1972, included blasting and sampling of the trench and geological mapping of the trench and rock knoll. Lack of outcrop in the showing area makes interpretation of the nature and extent of mineralization difficult. The mean assay, for five samples tested, was: 0.8% Cu.

NIC and BIDA CLAIMS

Vestor Explorations Limited
1502, 11111 - 87th Avenue,
Edmonton, Alberta.

86 E/9
65°40'N, 118°05'W

References:

Kidd (1932); Murphy and Shegelski (1972)

Property:

NIC 1-14 A34331-44
BIDA 1-6 A35072-77

Location and Access:

The claims are located at the mouth of the Camsell River. Access is by float- or ski-equipped aircraft from Yellowknife, some 250 miles to the south. Barge transportation to Hay River is also available.

History:

Nick Badham staked the NIC claims on behalf of Vestor Explorations Limited in August 1971. The BIDA claims (see Map 11, p. 124) were staked by N.J. Byrne in April, 1972, and transferred to Vestor Explorations Limited in May, 1972.

Description:

Most of the NIC claims are underlain by Proterozoic metavolcanics with feldspar porphyroblasts. On the northeast tip of the largest island in the claim group, is a coarse-grained granite unit which is at least two hundred feet wide. A small northeasterly trending diabase dyke cuts through the metavolcanics just north of the granitic rocks. Murphy and Shegelski (1972) found no mineralization within the claim group.

Current Work and Results:

A program of regional mapping was performed during the 1971 summer field season to evaluate known mineral showings, to gain understanding of the controls of the mineralization and to prospect for and stake new mineral showings on favourable structures. Although no new mineralized structures were found, zones considered favourable, on Nic Island, and near Bida Lake, were staked.

TERRA MINE	Ag, Cu, Co, Bi
Terra Mining and Exploration Ltd.	86 E/9
204, 8631 - 109th Street,	65°36'N, 118°07'W
Edmonton, Alberta.	

References:

Kidd (1936); Murphy and Shegelski (1972); Shegelski (1973); Shegelski and Thorpe (1972; Thorpe (1972, 1972a, 1972b)

Property:

A 1-24 N82280 (Lot 43, Group 1162)

Location and Access:

The mine is located on the Camsell River approximately four miles from its mouth (see Map 11, p. 124). The Mackenzie River barge system which connects the mine with Hay River, and a gravel airstrip 8 miles away which can handle aircraft as large as a DC3, provide this area with excellent transportation facilities. Terra maintains a twice weekly service between Hay River and the mine with their own DC3. During periods when the winter road and barge systems are inoperable a daily service has been maintained. A winter road links the mine with the Mackenzie Highway system at Rae.

History:

This property, originally known as the YAW group, was first staked in the 1940's. During 1960, Eldorado Mining and Refining Limited drilled 4 holes totalling 942 feet on the main zone; the best ore intersection assayed: 20 oz/ton Ag over 10.3 feet. Additional drilling was done under option, in 1963, by Echo Bay Mines Ltd.

The area was restaked as the A group by Carl Sutton in 1966. The assets of Silver Bear Mine Ltd. which was formed later

that year to acquire the ground were taken over by Terra Mining and Exploration Limited. Ag-Cu-Bi-Co mineralization was indicated over a length of 3,000 feet in a zone 150 feet wide by a 9,306-foot drilling program in 1967-68. The company has reported a possible ore reserve of 290,000 tons containing: 32 oz Ag, 2.5% Cu, 0.5% Co, and 0.5% Bi to a depth of 700 feet, but in view of the small amount of development work done, and acknowledged extreme variability of this type of mineral deposit, this cannot be considered proven ore.

During 1968 a decline was driven 1,200 feet to reach the main zone, 600 feet of drifting was completed and a 393-foot raise was driven up to the surface. By 1969, 7 to 9 thousand tons of mineralized rock estimated to grade 6 oz Ag/ton and 1.2% Cu, had been stockpiled and a 300-ton mill equipped to produce separate Ag-Bi and Cu-Ag concentrates had been completed. Some foundation problems were experienced as the mill was erected on unconsolidated permafrost material. Regular milling at a rate of 150 tons per day commenced late in October 1969.

In February 1970, a fire damaged the crushing facilities causing suspension of milling for several months. Underground drilling completed in September, outlined silver-bismuth rich veins that have a vertical extent of 600 feet. Cross vein #9 gave assay results of 152 oz Ag/ton uncut and 0.4% Cu over a 3.2 foot width and a 120 foot length. Geological mapping of a 10 mile by 2 mile area around the mine was completed during the summer of 1970.

Description:

A 100-foot wide northwest-trending mineralized zone in volcanics of the Aphebian Echo Bay Group carries in excess of 10% sulphides: the minerals commonly found include pyrite, pyrrhotite, argentite, chalcopyrite, and a mixture of cobalt and bismuth arsenides with native silver and native bismuth. The silver-bismuth-cobalt minerals are concentrated in quartz-carbonate-hematite veins along fractures that cut the copper disseminations which are chiefly confined to the apparently strataform main zone. Other minerals identified include skutterudite, safflorite, rammelsbergite, pararammelsbergite, bismuthinite, cobaltite, galena, tetrahedrite, bornite, arsenopyrite and sphalerite.

Current Work and Results:

In 1971, the underground inclined haulageway was extended another 850 feet to open the third level, approximately 450 feet below surface. Underground development was continued and some surface and extensive underground drilling was completed,

(see Table VII). The underground drilling was designed mainly to test the vein systems adjacent to the underground workings. Copper reserves were reported to be greater than 200,000 tons grading about 2.5% Cu and 5 to 8 ounces of silver per ton. Silver-bismuth reserves remain at about one year's supply grading around 50 oz/ton Ag and 10 lbs per ton bismuth. During the summer scintillometer testing, surface trenching and sampling indicated that the ore body may extend to the west. Six major anomalies lie 600 to 2,000 feet west of the present underground workings. Experience to date shows that uranium occurs with the high grade silver veins and not with the copper zone. A magnetometer survey delineated the zone of alteration with the copper zone near its centre.

Full scale production was interrupted in November, 1971, when a generator failed, the second generator broke down in January, 1972, causing suspension of milling. Considerable financial difficulty resulted during this suspension of operations and it was not until May, after obtaining new financing, that production resumed and an active exploration program was initiated in an attempt to improve the ore reserve picture.

During 1972, Terra Mining and Exploration Ltd. acquired the Norex property approximately 4 miles east of the Terra Mine and laid out a route for an all weather road to connect the Terra mine site with that property and the nearby air strip. The Norex DC3 was acquired about the same time and a regular air service was established between Hay River and the Norex gravel strip - the ice strip at Terra was used when serviceable. Surface drilling, to test favourable vein structures outlined by the 1971 exploration program, intersected bismuth bearing calcite veins and an exploration drift was driven out from the first mine level to test these. Veins intersected in this drift by the end of 1972, ran less than 10 oz/ton Ag. (Results during 1973 suggest the former values were not representative of the vein, which when finally located, in 1973, gave: 61.4 oz/ton Ag over a width of 4.1 feet and for a length of 70 feet.

During the closing months of 1972 ore was being mined from three main veins above the third level. By the year's end, ore reserves were approximately enough for 7 months production.

A declined haulageway was started late in 1972, on the Norex property, with a proposed length of about 1,500 feet to vein intersection. By year end about 30 feet had been completed and the job had been suspended due to cold weather.

TABLE VII
Production and Development Data
Terra Mines

Year	Drifting	Development		
		Raising	Diamond Drilling Underground	Surface
1971	2,973	1,331	4,816	1,364
1972	1,691	1,123	1,772	1,688

Year	Tons	Production			Cu lbs. Produced	Payroll Monthly Average
		Grade Ag oz/ton	Grade Cu %	Ag oz.		
1971	48,714.1	41.4	0.80	1,193,396	783,208	69
1972	24,722.5	78.0	0.38	1,917,922	189,267	40*

*During February, March and April 1972, only a standby crew averaging 13 men was employed.

MAG GROUP
Jason Explorers Limited
775, 555 Burrard Street,
Vancouver, B.C.

Cu, Au, Ag
86 E/9; F/12
65°36'N, 118°00'W

References:

Badham (1972); Kidd (1936); Lord (1946, 1952); Lord and Parsons (1952); Murphy and Shegelski (1972); Padgham et al. (1974); Shegelski (1973); Thorpe (1972)

Property:

37 MAG claims T24903

Location and Access:

The MAG claims are on the north side of Rainy Lake, approximately 250 miles northwest of Yellowknife. Access is by ski- or float-equipped aircraft, by the winter road connecting

Fort Rae to Coppermine, and by large planes using the unpaved landing strip at the Norex property.

History:

The property was originally staked as a group of 72 claims in September, 1967, by L.E. Peckham. The claims were transferred between October, 1967, and September, 1969, to Jason Explorers. In September 1969, 25 claims were allowed to lapse. The property as of December 31, 1970 included 37 claims -- MAG 3-5, 14, 18, 27, 28, 31-33, 39-42, 47-59, and 63-72, (see Map 11, p. 124).

The area presently covered by the MAG claims had been staked on earlier occasions and small trenches dating from the early 1930's can be found on various mineralized zones.

Jason Explorers Limited spent two field seasons in preliminary prospecting on the MAG claims. This work included, in 1968 prospecting, trenching, and an airborne scintillometer survey. In 1969, 43 trenches, totalling 80 cubic yards in volume were excavated.

As a result of this work, 35 of the claims were allowed to lapse as they appeared less favourable for the hosting of economic minerals than did the remaining 37 claims.

The three most significant finds made during the 1968-1969 season were as follows:

- a) MAG 68 - Trenching revealed a small body of galena and pyrite, in trachyte on its fault contact with diabase.
- b) MAG 52 - A conspicuous gossan zone some 100 feet wide trending northwest, was discovered on the north side of a pond, but only pyrite mineralization was found here.
- c) MAG 57 - Two parallel east striking calcite veins ranging from 3 to 5 feet in width, were traced for over a hundred feet on this claim. The calcite contained minor occurrences of quartz and chalcopyrite.

Description:

The Rainy Lake area is underlain by Archean sedimentary and volcanic rocks of the Echo Bay Group which are intruded by plutonic masses of granite, syenite and diorite, and cut by dykes of quartz-feldspar porphyry, and diabase. Quartz veins and stockworks are found in these rocks, (Murphy and Shegelski, 1972; Shegelski, 1973).

The MAG claim group is underlain by Aphebian rocks comprising several types of volcanic feldspar porphyries with one conglomerate unit, and large areas of intrusive granite, all cut by quartz-feldspar porphyry and diabase dykes. Pyrite, chalcopyrite, bornite, malachite and hematite occur in feldspar-quartz veins and in small calcite veins that have locally been strongly weathered to produce gossans.

Current Work and Results:

In late July and August, 1971, Trans-Arctic Explorations Limited geologically mapped and trenched on the MAG 37 claim group. Eleven zones were sampled; the best assays from 2 trenches gave: 0.24 oz/ton Au, 0.1 oz/ton Ag, and 6.7% Cu.

MARIAN RIVER PROJECT	U, Co, N
Getty Mines Limited	86 F/6,7,11
1904, 1177 West Hastings Street,	65°30'N, 117°00'W
Vancouver, B.C.	

References:

Lord (1941); Lord and Parsons (1952); Parsons (1948)

Property:

Prospecting permits #282, 283, 284

Location and Access:

The permits are located in the Calder River area, about 225 miles north-northwest of Yellowknife. Access is by float- or ski-equipped aircraft.

History:

Prior to acquiring the permits in 1972, Getty Mines conducted a water survey which outlined eight anomalous radioactive areas of varying dimensions and intensities.

Description:

Granitic rocks are abundant in the area, and they comprise both porphyritic and massive varieties. Other widespread rock types include felsic pyroclastics, and diabase, and gabbro dykes, which intrude the other units in a number of places.

In the project area pitchblende is invariably closely associated with hematite and other sulphide minerals such as chalcopyrite and pyrite in fractures in granite porphyries. Additional vein materials include quartz, calcite and nickel-cobalt minerals.

Current Work and Results:

During 1972 a detailed ground follow-up survey of anomalous areas outlined in a hydrogeochemical survey was conducted to delineate the source of uranium in anomalous lakes, and hence to investigate the uranium potential of the area.

A correlation was found between the anomalous lake uranium assays and pitchblende showings in the area, and new showings were discovered on anomalies 5BW and 5AS, which reinforces the theory that radioactively anomalous zones defined by water survey may be related to bedrock uranium mineralization.

Seventeen samples of mineralized rock, from the area of anomaly 5BW gave assays that ranged from 2.2 lbs/ton to 204 lbs/ton U_3O_8 . The mineralized veins are narrow ($\frac{1}{2}$ " wide) and discontinuous along fractures. They are considered sub-economic in spite of the high assays along narrow widths.

AM and SA CLAIMS
D.E. Arden
Box 1176,
Yellowknife, N.W.T.

Cu
86 F/12
65°35'N, 117°52'W

References:

Kidd (1936); Lord and Parsons (1952); Padgham et al. (1974)

Property:

AM 1-38 A8691-728
SA 1-6 A8685

Location and Access:

The claims are located in the Camsell River area approximately 250 miles northwest of Yellowknife (see Map 11, p. 124). Access is chiefly by float- or ski-equipped aircraft. The winter road to Coppermine passes within 5 or 6 miles of the property.

History:

The area presently covered by the AM and SA claims has been staked on previous occasions, but exploration work has been confined to prospecting and trenching. D.E. Arden staked the AM and SA claims in the fall of 1969.

Description:

The area is underlain by Aphebian granitic rocks that intrude weakly metamorphosed Echo Bay and Cameron Bay Group supracrustal rocks.

The AM claims are mainly underlain by medium to coarse grained light grey granodiorite that is cut by a swarm of northerly striking, light purplish to red, quartz-feldspar porphyry dykes (Padgham et al. 1974). Andesite tuffs with an argillaceous interbed are exposed along the lake shore on AM 20, 29 and 30 and minor chalcopryite was noted in trenches blasted into what appears to be highly altered remnants of andesite enclosed in granodiorite on AM 29. The granodiorite exposed on the claims is generally devoid of mineralization or signs of pervasive alteration.

The SA group lies on the northern border of the ITLDO claims containing the Norex Mine. The rocks exposed are highly altered granite, andesite and basaltic flows or tuffs, which can be considered more favourable for economic mineralization than the granodiorites of the AM claims. Quartz veins in fractures contain magnetite, pyrite, chalcopryite, malachite, some bornite and hematite.

Current Work and Results:

Several zones of mineralization that were found on the property during a geological investigation in 1971, were trenched and sampled. The best assay of the mineralized rock returned: 0.14% Cu (a sample taken from trench #1). Traces of silver were found in five samples.

CARIBOU and MOOSE CLAIMS
Tobe Mines Limited
605 - 535 Thurlow Street,
Vancouver 1, B.C.

86 F/12
65°38'N, 117°50'W

References:

Fraser (1967); Kidd (1936); Lang (1952); Lord and Parsons (1952); Padgham et al. (1974).

Property:

CARIBOU 1-6 A3171
MOOSE 1-8 A3161-8

Location and Access:

The claim area is located 12 miles southeast of Great Bear Lake (see Map 11, p. 124), 256 miles north of Yellowknife. Access is chiefly by small chartered aircraft equipped with floats or skis. The property lies four miles from a winter road and the Great Bear Lake barge route.

History:

Discovery of pitchblende in the area led to the staking of the MOOSE and CARIBOU claims. The claims were transferred to Richard Grey in June, 1971.

Description:

The MOOSE and CARIBOU claims are underlain by andesitic pyroclastics, mainly tuffs, some well bedded tuffaceous sandstones probably the reworked equivalent of the volcanic rocks and minor andesitic agglomerate. These rocks are intruded by northerly striking purplish to pink coloured quartz-feldspar porphyry dykes and a set of east striking diabase dykes, (Padgham et al. 1974). Few signs of mineralization were seen in these volcanic rocks which are dominantly air-fall tuffs, but may include some welded units, and they are not considered particularly favourable as sites for mineral deposits. Mineralization has not been found on the property; but pitchblende occurs just to the northeast of the MOOSE claims.

Current Work and Results:

An airborne radiometric survey was flown over the MOOSE and CARIBOU claims during the summer of 1971.

Three anomalies were located by the survey. Anomaly A is on the west central edge of the CARIBOU claims and shows a maximum radiometric count of 0.018 MR/HR which is well above the local background count of 0.010 MR/HR. Anomaly B lies on the southwestern edge of the CARIBOU claims and has a maximum radiometric count of 0.020 MR/HR. Although Anomaly C, which is located on the MOOSE claims, only has a reading of 0.014 MR/HR it is considered to be the most interesting in terms of uranium potential because it is small and is surrounded by areas of low radioactivity. It is unlikely that this last anomaly is caused by the mass effect of potassium isotope radiation, which could be the cause of the A and B anomalies.

CAMELL RIVER PROPERTY
Federated Mining Corporation Ltd.
510, 850 West Hastings Street,
Vancouver, B.C.

Ag, Cu, Bi, Co, Au
86 F/12
65°35'N, 117°58'W

Name Changed 1973 to
Northrim Mines Ltd.
Box 6917, Postal Station D,
Calgary, Alberta.
T2P 2G1

References:

Kidd (1932); Lord (1951); Lord and Parsons (1952); Murphy and Shegelski (1972); Padgham et al. (1974); Parsons (1948); Thorpe (1970)

Property:

WOLF 3-14 A16930
ROSE 1-36 N67317
LM 1-8 111029 (Canada Mining Lease 2496)
LK 1 T97327

Location and Access:

These claims are located in the Camsell River area (see Map 11, p. 124). Access from Yellowknife, approximately 250 miles to the south-southeast is by float- or ski-equipped aircraft. Barge transportation to Hay River is also available. An airstrip on the Norex property, across the river and a mile to the south can handle DC3 aeroplanes.

History:

The original discovery in the subsequent adit area, Silver Bay Mine, was made in August, 1932, but all of the presently valid claims were staked in 1965 and 1966. In July, 1970, Federated Mining Corporation Limited entered into an agreement with Silver Bay Mines Ltd. whereby it could acquire interest in the property. Pursuant to this agreement, Federated Mining Corporation Limited caused a new company, known as Camsell Holdings Limited, to be incorporated to develop the property. Underground workings were rehabilitated and to mid-November, 1970, 3,300 tons of high grade ore was mined and stockpiled.

Description:

The Echo Bay volcanic complex underlies these claims which lie just west of a large granitic intrusion. Three mineralized zones have been outlined.

Zone 1 consists of a number of east-west trending veins containing silver-copper-bismuth arsenides with associated nickel-cobalt minerals and gold.

Zone 2 lies about 1,200 feet to the north of zone 1. It is a quartz carbonate vein in the andesites and contains chalcopryrite. What appears to be a large shear zone, strikes northeasterly between the 1 and 2 zones; from this shear the know veins appear to branch out in a "horse-tail" configuration.

Zone 3, a northwesterly striking series of veins that lie about 3,600 feet east of zone 1, occur in a transition zone comprised of andesites and feldspar porphyries. A showing of copper with some native silver was reported in this zone. Chalcopryrite was also observed in quartz at the boundary of WOLF 9 and 10 claims. On the WOLF 11 and 8 claims, in an area predominantly underlain by granodiorite, about 3/4 mile to the north of zone 3, chalcopryrite occurs in a quartz gangue in a vein system that has been traced into granites.

Current Work and Results:

Late in 1970 and early in 1971, drilling and underground development indicated 22,785 tons of ore. A portable 50-ton per day mill started production in March, 1971, from a 5,000 ton stockpile of broken rock.

During 1971-1972, the company carried out drilling and stoping on the No. 1 Vein and completed a 200 foot cross-cut to intersect veins 1A, 2 and 4. A 100 to 140 ton per day

conventional underground mill installed in the fall of 1971 was connected to the No. 1 zero level adit by a 240-foot inclined tramway. The installation of a secondary jaw crusher permits a 70 tons per day operation. The No. 1 shoot above the zero level has been mined out and the ore either milled or stockpiled. The continuation of the No. 1 shoot contains an estimated 39.8 tons of ore per vertical foot grading 26.8 oz/ton silver. Milling commenced in January, 1972, and was suspended by June. The company reported that 4,000 tons of ore were produced during the 12 months of operation.

A geological study of the area was conducted during the 1972 field season by a company geologist.

EAGLE CLAIMS

D. Saare	86 F/12
2101 Lorraine Avenue,	65°37'N, 117°59'W
Coquitlam, B.C.	

or:
Box 2122,
Yellowknife, N.W.T.

References:

Murphy and Shegelski (1972); Padgham et al. (1974)

Property:

EAGLE 1-5 A47761-65

Location and Access:

The 5 EAGLE claims are located in the Camsell River area (see Map 11, p. 124) approximately 250 miles north-northwest of Yellowknife. Access is by float- or ski-equipped aircraft. Barge transportation to Hay River is also available. A gravel airstrip at the Norex property is long enough for DC3 landings.

History:

The only record of this ground being previously staked was as the COP 1-14 claims by L.E. Peckham in November 1967. Later in that same month the claims were transferred to Conjuror Bay Mines Limited. Work up until July, 1970, consisted of EM and magnetometer surveys, trenching, and an airborne radiometric survey. No results are available but the claims subsequently lapsed.

D.A. Saare staked the 5 EAGLE claims in February 1972 over part of the ground previously covered by the COP claims. These claims have also lapsed.

Description:

The EAGLE claims are almost entirely underlain by syenite which intrudes the Aphebian metavolcanic rocks of the region. A small unit of granite or granodiorite is found in the southeast corner of the property and small screens or inclusions of intensely altered andesite are present locally. An east trending diabase dyke cuts the syenite near the southern boundary of the property.

Shegelski (in Murphy and Shegelski, 1972) located a chalcopryite occurrence in the south-central part of the claim group. No other mineralization was noted.

Current Work and Results:

A geological report was completed in 1972 as a result of a 3 year investigation. The report contains little information mainly reporting on the distribution of intrusive igneous rocks underlying the claim group. The latter cannot be considered favourable host rocks for the vein type silver deposits typically present in some of the supracrustal rocks of the Camsell River area (Padgham et al. 1974).

FOX and WAS CLAIMS
Quint Holdings Ltd.
1075 West Georgia Street,
Vancouver, B.C.

86 F/12
65°38'N, 117°55'W

D. Saare or:
2101 Lorraine Avenue, Box 2122,
Coquitlam, B.C. Yellowknife, N.W.T.

Federated Mining Corporation Limited
510, 850 West Hastings Street,
Vancouver, B.C.

References:

Lord (1951); Lord and Parsons (1952); Murphy and Shegelski (1972); Padgugham et al. (1974)

Property:

FOX 1-36 A5201
WAS 1-16 T97311

Location and Access:

The FOX and WAS claims are separated by the Camsell River in the vicinity of Heath Lake (see Map 11, p. 124), approximately 250 miles north-northwest of Yellowknife. The property is accessible by barges which operate along the Mackenzie River Barge System. Float- and ski-equipped aircraft can also be used. An airstrip on the Norex property can handle DC3 landings.

History:

In the 1930's the ground was covered by the MUSKOK and CUB 1-8 claims. No assessment work was reported.

The ground was again staked in January, 19 as the BOAT 1-6 claims by J.F. Clarke. But again no work was done.

The FOX claims were staked in October, 1969, and the WAS claims in September, 1970. Both groups were transferred to Quint Holdings Limited in October, 1970. In November, 1970, a geological report and 82 line-miles of radiometric surveys were completed.

Description:

Approximately 75 to 80% of the claim area is underlain by syenite, granite, and granodiorite. In the south-central

section, basaltic lavas and pyroclastic outcrops are present. The northernmost of two northeasterly trending faults cutting the area of the claims has a giant quartz vein along it. Two diabase dykes cut across the central part of the property in an east-west direction.

Narrow veins containing hematite, magnetite, and chalcopyrite were found in the rocks along the river bank.

Current Work and Results:

Between August and October, 1971, 20 line-miles of ground magnetometer surveys were conducted in order to locate anomalous magnetic trends. A number of magnetic linears revealed during the survey are caused by fractures, contacts and dykes.

This work was done for Federated Mining Corp. Ltd. and recorded by D.A. Saare, while the claims were registered in the name of Quint Holdgins Ltd. All FOX and WAS claims lapsed in 1972.

NOREX MINE
Norex Resources Ltd.
605, 535 Thurlow Street,
Vancouver 5, B.C.

Ag, Bi, Co, Pb, Zn
86 F/12

References:

Kidd (1936); Lord (1951); Lord and Parsons (1952); Murphy and Shegelski (1972); Padgham et al. (1974); Thorpe (1972a)

Property:

ITLDO 1-13 T50490, N16819

Location and Access:

The Norex Mine (ITLDO 1-13) is located on the south shore of Silver Bay, part of the Camsell River (see Map 11, p. 124). A 3000 foot gravel airstrip is located a mile from the property and is connected to it by a short all weather gravel road. The property is also serviced by barge during ice free months and by winter road.

History:

The principal silver showings on this ground, were discovered in September, 1932, by Don McLaren for the A.X. Syndicate and staked as the ELITE claims. White Eagle Silver Mines, was formed in 1933 to take over the ELITE and six other claim groups from the Syndicate. Stripping and test pitting was done on the five principal parallel veins occurring in a 300 foot wide zone of altered rock. This ground was subsequently dropped, then restaked in 1945-46 by A.V. Giaque and associates as the F and H group (Lord 1951, p. 43), and acquired in 1946 by Camsell River Silver Mines Limited. Dropped again, it was restaked by J.M. Harriman, in 1960, as the 13 ITLDO claims. Caesar Silver Mines Limited was formed in 1967 to explore the ITLDO group and subsequently staked additional claims in the area. During 1968, some trenching and drilling was carried out. A shallow drill hole core assayed: 2,458.3 oz Ag/ton over 3 inches and 99.5 oz Ag/ton over the next 6 feet, across the main vein (Thorpe 1972a, p. 80). An adit and raise driven on the vein indicated about 2,000 tons of high grade silver ore recoverable by open pit.

Caesar Silver Mines Limited optioned the property in 1969 to Norex Uranium Limited who did additional sampling and drilling of the main occurrence. It was estimated that 5 to 6 months of open cut mining over a vein length of 150 feet, a width of 20 feet, and to a depth of 80 feet would produce 54,000 tons of broken rock; 4,700 tons of this amount to be handcobbed, and estimated to grade: 204 oz Ag/ton (total silver content 958,800 oz) was to be trucked about 6 miles to the Terra Mining and Exploration Limited mill for treatment.

Open pit extraction began in 1970, when Norex Resources Ltd. exercised its option on the property and proceeded to construct a 50 ton per day mill. ITLDO 10, 11 and 12 were allowed to lapse in 1971, after mining ceased. They were restaked the same year, (see ITLDO 10, 11 and 12 under L.W. Hansen, p. 147).

Description:

The mined vein-lodes consisted of two narrow, steeply dipping, parallel Ag-Ni-Co-Bi quartz-carbonate zones, 6 to 12 feet apart. Average combined width of ore was said to be 4.7 feet with a length of 150 feet and a depth of 80 feet. This material was mined from two of the five parallel east-southeast trending veins in a 300 foot wide altered zone in a 500 foot wide belt of rock that was interpreted as a quartz-lattice porphyry by Kidd (1936). More recently this belt has been considered an altered and recrystallized andesite flow-tuff sequence (Padgham et al. 1974; Murphy and Shegelski 1972). The longest vein has been traced

along strike for 550 feet. Vein minerals include chalcopyrite, safflorite-rammelsbergite, native bismuth and an unidentified bismuth arsenide. Native silver is present in quartz as patches of abundant wires in at least three of the veins. Pyrite is sparsely disseminated in the wallrock.

Current Work and Results:

Because of financial and legal problems little has been done on the Norex (ITLDO) property since open pit mining ceased in 1970. Attempts to resume production from the pit were made in 1971 but these never progressed beyond attempts to make the steep walls safe to work beneath.

A diamond drilling program commenced in December 1970 reportedly consisted of 16 holes totalling 5,400 feet. One hole drilled on the "gossan zone" about 1000 feet southeast of the open pit intersected only minor arsenides. The remaining holes were drilled beneath the eastern end of the open pit. Assays reported 8 to 12% combined lead-zinc with little silver.

In May/June of 1971 Echo Bay Mines Ltd. milled 975 tons of ore shipped from the Norex Mine earlier in the spring. This ore graded 59.26 oz/ton silver, and 57,249 ounces were recovered in jig and flotation concentrates.

Terra Mining and Exploration Ltd. optioned the Norex property, taking over most of the assets, in late 1971, and the ore stockpile was shipped to the Terra Mill. An adit designed to intersect the mineralized zone at depth was collared some 200 feet vertically below and nearly 1000 feet horizontally away from the open pit. After a few rounds this was abandoned.

ITLDO 10, 11 and 12 CLAIMS

L.W. Hansen
4373 Hurst Street,
Burnaby, B.C.

86 F/12
65°43'N, 117°56'W

References:

Hornal et al. (1974); Kidd (1936); Murphy and Shegelski (1972);
Padgham et al. (1974)

Property:

ITLDO 10-12 A47477-79

Location and Access:

The 3 ITLDO claims are located in the Camsell River area (see Map 11, p. 124) approximately 250 miles north-northwest of Yellowknife. Access is by float- or ski-equipped aircraft. Barge transportation to Hay River, via Great Bear Lake and the Mackenzie River is also available. DC3 aircraft can land at the airstrip on the Norex property.

History:

The principal silver showings in this area were discovered in September 1932 by Don McLaren for the A.X. Syndicate and staked as the ELITE claims. White Eagle Silver Mines, was formed in 1933 to take over the ELITE and six other claim groups from the syndicate. Stripping and test pitting was done on the claims to the east of the present ITLDO 10, 11 and 12 during the thirties, but the ground was dropped to be restaked in 1945-46 by A.V. Giauque and associates as the F and H group and acquired in 1946 by Camsell River Silver Mines Limited. Dropped again, it was restaked by J.M. Harriman in 1960 as the 13 ITLDO claims. Caesar Silver Mines Limited was formed in 1967 to explore the ITLDO group and subsequently staked additional claims in the area. During 1968 some trenching and drilling was carried out and an open pit mine was established for a short time near the centre of the group (see Norex Resources Ltd., p. 144, and Hornal et al., 1974). The ITLDO 10 to 12 claims lapsed in April, 1971. They were restaked with the same names in May, by B. Charette, and were transferred to L. Hansen in August of 1971.

Description:

The ITLDO 10, 11 and 12 claims are underlain by andesitic and basaltic volcanic rocks, and by highly altered granodioritic intrusive (?) rocks (Murphy and Shegelski 1972; Padgham et al. 1974).

Much of the claim area is covered by overburden. The proximity of these claims to the Norex deposit suggests that they are worthwhile exploration targets.

Current Work and Results:

A geological report completed in 1972 on these claims provides little geological information about them, but summarizes one point of view on their geology.

REX 1-99 CLAIMS	Ag, Cu
Barons Oil Limited	86 F/12
907 - 3rd Avenue South,	65°38'N, 117°50'W
Lethbridge, Alberta.	

References:

Fraser (1967); Hornal et al. (1974); Lang (1952); Lord and Parsons (1952); Padgham et al. (1974)

Property:

REX 1-99 T94601

Location and Access:

The REX group of claims straddle the Camsell River in the northwest corner of the Calder Lake area (see Map 11, p. 124). They can be reached by air, to any one of a number of lakes within or adjacent to the claim group, by winter road from Rae or by water and road along the Mackenzie-Great Bear Lake barge route.

History:

The REX group was staked in January and February, 1969, to cover potentially valuable silver-bearing veins in the Camsell River area.

Parts of the REX group included ground previously covered by the EJ and ED groups.

Description:

Most of the REX group is underlain by andesitic volcanic rocks which include flows, tuffs and agglomerates, but on the claims south and west of White Eagle Falls, conglomerate and fine-

grained clastic sediments are found. These supracrustal rocks are intruded by numerous dominantly northerly striking quartz-feldspar porphyry dykes, and by diabase dykes. On the westernmost portion of the claim group, the supracrustal rocks are intruded by a large granodiorite pluton, (Padgham et al. 1974).

Current Work and Results:

Prospecting and geological mapping was done on 14 REX claims (Nos. 82-92 and 97-99) during June, 1971. One zone of mineralization was discovered and trenched: it's sulphide content, consisting of pyrite, chalcopryrite, and bornite, in fine-grained quartz, was low. Strong radioactivity was noted in parts of the trench. Assays indicated less than 0.6 oz Ag/ton. Results were inconclusive and geological mapping and prospecting were recommended.

A ground magnetometer survey was conducted in June 1971 on the REX 11, 19, 20 and 31-39 claims. Prospecting and geological mapping were recommended as a follow-up to clarify the inconclusive results of the magnetometer survey.

An airborne magnetometer survey conducted over the REX 7 to 99 mining claims during January, 1972, failed to outline additional zones of interest.

Imperial Oil Limited
111 St. Clair Avenue West,
Toronto, Ontario.

86 F; K; N; N/7

References:

Fraser et al. in Price and Douglas (1972); Hoffman (1973);
Lang et al. in Douglas (1970); McGlynn in Douglas (1970)

Property:

NONE

Location and Access:

The region explored comprised large portions of the Bear Province in 86 F, K and N. Access to this region is at present mainly by fixed-wing aircraft capable of landing on any of the numerous lakes that dot the area. The tree line passes through the area so that scattered woods and scrub timber alternate with tundra throughout.

History:

The region has had slightly more than 40 years of wide ranging prospecting beginning with the staking of the Echo Bay area in 1930. Numerous base metal showings are known, but few have been extensively explored.

Description:

The Bear Province has been well described by Fraser et al. (1972), by Hoffman (1973), and by McGlynn (1970). Some aspects of the mineral deposits and economic geology are considered by Lang et al. (1970).

Current Work and Results:

A wide ranging exploration program was mounted in 86 F, K and N by Trigg, Woollett and Associates for Imperial Oil Enterprises Limited, during the summer of 1972. Numerous previously known showings were investigated, widespread conventional prospecting, some radiometric surveys and reconnaissance geological work was undertaken.

No claims were staked as a result of this work.

ECHO BAY MINE	Ag, Cu, Pb, Zn, Bi
Echo Bay Mines Ltd.	86 K/4; L/1
408, 10355 Jasper Avenue,	66°06'N, 118°00'W
Edmonton, Alberta.	

References:

Schiller (1965); Schiller and Hornbrook (1964); Thorpe (1966)

Property:

10 ECHO BAY claims 27315

Location and Access:

Echo Bay Mine is located at Port Radium on Great Bear Lake. The area can be reached by aircraft which use a 4000-foot long gravel airstrip during the summer and an ice-strip during the winter. During the summer months, barges of the Northern Transportation Company are used on Great Bear Lake, the Bear River and the Mackenzie River. A winter road connects the mine site with the Mackenzie highway system at Rae 250 miles to the south.

History:

This ground was staked in 1930 by Messrs. Selby, Woodford and Raht, and transferred in 1931 to the Consolidated Mining and Smelting Company of Canada Ltd. The ECHO BAY claims are adjacent to and east of the COBALT claims, which were staked a few months earlier by Labine and St. Paul, and which later became the El Dorado Mine.

Two adit levels were established during the early development, mineralization was encountered and about 9 tons of high grade handsorted ore was shipped to Trail, B.C. In 1963 Northwest Explorers of Edmonton optioned the property from Cominco Ltd.

Following diamond drilling which indicated that production was feasible Echo Bay Mines Ltd., now controlled by International Utilities was incorporated and production commenced in 1964, from the Cominco Ltd. upper two adit levels. A third adit, just above the level of Great Bear Lake, was driven in 1966, and in 1967 an internal shaft was collared on that adit and sunk 3 levels. This shaft was deepened in 1969-70 to 1,250 feet providing 8 levels. From 1964 through to January 1st of 1972, production has been approximately 16 million ounces of silver and 7 million pounds of copper from 272,000 tons of ore. The current milling rate is slightly greater than 100 tons per day.

Description:

The Echo Bay veins are contained in Aphebian volcanic rocks of the Lower Echo Bay subgroup which includes banded and massive tuffs, andesites and agglomerates. These rocks strike NE and within the mine dip between 30° and 40° SE. Folding is generally light but locally is strong around intrusive contacts. A diabase sheet and two diabase dykes of Helikian age cut the Echo Bay Group within the mine. The sheet is about 150 feet thick and dips 20° to 30° E. The dykes are up to 100 feet thick, nearly vertical, and strike west-northwest parallel to tension fractures within both Eldorado and Echo Bay Mines.

The major structure within the mine is the "A" fault which strikes northeast parallel to the volcanic rock trends, and dips between 40° and 50° SE. It is believed to be a reverse dip slip fault with apparent offset on the veins of approximately 300 feet. Veins are quartz-carbonate filled shears and fractures very similar to those in nearby deposits. Essentially, the Echo Bay Mine is a continuation of the Eldorado Mine lode which lies immediately to the west.

There is good ore on the "A" fault between the offset veins, but this ore was probably dragged along the fault rather than having formed there. Ore zones plunge steeply east and there are high grade shoots within the ore zones apparently coincident with dilatant zones.

The metallic minerals are similar to those in both the Eldorado deposit and the Camsell River area, and include; native silver, argentite, ruby silvers, pyrargyrite, chalcopyrite, bornite, cobalt-nickel arsenides, galena, sphalerite, bismuth minerals and other sulphosalts. Gangue minerals are dolomite, quartz and carbonate. The ore can be grouped into several types. In 301, 305 and 206 stopes the veins are unusually persistent and contain fine-grained argentite with typically coarse-grained galena, sphalerite, niccolite and some pitchblende. This is a relatively low grade area. The 409 type of mineralization, found on steeply dipping veins, is an irregular hematitized quartz-carbonate vein, with both native silver, argentite and some quite spectacular massive native silver. It typically contains small high grade ore shoots with disseminated arsenides and chalcopyrite. Another type, developed along the "A" fault, is a narrow quartz-carbonate vein with a much wider alteration zone of silicified hematite that may average 6-8 feet in width. In the footwall of the fault the silver mineral is mainly argentite, with minor native silver, considerable ruby silver and an unusually high copper content, with much bornite. The grade is consistently very good in stopes along the "A" fault vein.

The main types of alteration on the veins are hematitization, silicification and carbonatization. Argillic and chloritic alterations are generally associated with shears or with the shear vein direction.

Current Work and Results:

Although production was up in 1971, the grade dropped to 55 oz/ton. Geologists at Echo Bay commenced a review of all known silver and uranium showings in the immediate vicinity of the mine.

Six thousand feet of drilling was completed early in 1972 but it revealed very little mineralization. Results of a rock geochemical survey on possible vein structures did not prove encouraging. Drilling began in September in an attempt to locate ore below the diabase sheet. Reserves averaging 60 oz/ton Ag are sufficient for 18 months of production.

TABLE VIII
Production Summary
Echo Bay Mine

Year	Tons Milled	Grade		Production	
		Ag oz/ton	Cu %	Ag oz.	Cu lbs.
1971	35,985	68	0.92	2,445,709	663,176
1972	27,291	65	1.05	2,456,386	785,682

Coppermine River Limited	Cu
4003 Toronto-Dominion Centre,	86 N/7,8,10
Toronto, Ontario.	67°21' - 67°29'N
	116°20' - 116°40'W

References:

Allan and Hornbrook (1971); Baragar and Donaldson (1973);
Craig (1960); Lord (1951); Robertson (1969); Thorpe (1970)

Property:

DOT		METALS 1-30	N89113-42
ED 1-4	N91148-50	TON 1-30	A47031-60
GUS 1-30	A47001-30	MET 1-26	A431-56

Location and Access:

The main group of claims is located in the Hope Lake area 350 miles north of Yellowknife and 35 miles southwest of the village of Coppermine. An airstrip and dock facilities on Hope Lake make aircraft landings possible for most of the year.

History:

The ED, DOT and METALS claims were staked in 1966 and were transferred to Coppermine River Limited in March 1967.

Detailed geological mapping done in July and August 1967 revealed 60 copper showings, half of which were considered to warrant further exploration work.

Extensive ground geophysical surveys - EM, IP and magnetometer - were carried out in 1967 and the results are presented in Thorpe's (1970) paper on exploration activities in the Coppermine area.

An airborne EM and magnetometer survey flown in 1968 over holdings of 50 different companies added important information about the DOT claims.

The 26 MET claims were staked by N.J. Byrne in August 1969 and he subsequently transferred them to Coppermine River Limited who conducted an extensive ground geophysical survey late in 1969. One zone in the survey gave well defined anomalies, and drill testing and more IP surveys were planned to check this area.

The GUS and TON claims were staked in September 1970 by Fred Diamond and transferred to the Coppermine River Limited in October 1970.

Description:

This property is almost entirely underlain by the Proterozoic Copper Creek Formation which consists of basalt flows with minor intercalated sandstone. The northeasterly-trending Teshierpi Fault cuts across the centre of the area, and two minor faults begin at the Teshierpi Fault and extend north. Two sections of Paleozoic quartz sandstone, conglomeratic sandstone and siltstone which are approximately 2 miles long and $\frac{1}{4}$ mile wide are exposed along the easternmost of these subsidiary faults.

Current Work and Results:

During the 1971 summer field season twenty-four anomalous lake drainage basins were examined; first using ground follow-up of anomalous lakes and second by reconnaissance soil sampling along the Teshierpi Fault. Several of the anomalies can be traced to mineralized flow tops but some anomalies have not been adequately explained.

Additional geological mapping and geochemical work, mainly soil sampling, was done in the area in 1972.

PROSPECTING PERMIT 69 and 70
Ashmore Gold Mines Ltd.
Muskox Mines Ltd.
607, 80 Richmond Street West,
Toronto, Ontario.

87 H/9,16

References:

Thorsteinsson and Tozer (1962)

Property:

Prospecting permit 69
Prospecting permit 70

87 H/9
87 H/16

Location and Access:

The quadrangles covered under prospecting permits 69 and 70 are in the central part of Victoria Island. The nearest centre for charter aircraft is Cambridge Bay, about 230 miles southeast of the areas.

History:

Permits 69 and 70, issued in 1968, were explored in 1968 and 1969. They expired on March 31, 1971.

Description:

The areas covered by permits 69 and 70 cover part of the Minto Arch which brings Bear Province Hadrynian volcanic and clastic sedimentary rocks to the surface in a wide easterly trending belt across the centre of Victoria Island.

Current Work and Results:

No work was done under permits 69 and 70 in 1971. They expired on March 31, 1971.

CORDILLERA

(Includes Nahanni Mining District
and part of the Interior Plains)

RAM and ROD CLAIMS	Pb, Zn, Ag
Getty Mines Limited	95 E/12
1904, 1177 West Hastings Street,	61°31'N, 127°32'W
Vancouver, B.C.	

References:

Blusson (1968); Gabrielse et al. (1965)

Property:

RAM 1-16	N84788-803
RAM 17-32	A49082-97
ROD 1-16	N84804-19

Location and Access:

The area is located 40 miles southeast of Cantung and 110 miles northeast of Watson Lake. Helicopters can be used to ferry equipment from the Hyland airstrip which is only 30 miles away to the west, in the Yukon Territory.

History:

The Geological Survey of Canada mapped the area in the early 1960's (Gabrielse et al. 1965). During 1965, J.C. Turner found mineral showings in a fault zone and along the contact of a Cretaceous quartz-monzonite stock, and together with M.A. Martin staked the RAM and ROD groups in 1968 and 1969. A.C.A. Howe International Limited carried out geological mapping, trenching and sampling surveys over the property in 1968 for Ramid International Limited (formerly Ramid Resources Limited).

Description:

The RAM and ROD groups, in the Selwyn Mountains, are underlain by northwest-striking Cambrian siltstone and argillaceous limestone which are intruded by Cretaceous quartz-monzonite plutons. A skarn zone, 400 to 1600 feet wide surrounds the intrusion and contains small lenses of lead-zinc sulphides. Galena and sphalerite mineralization occurs as two distinct types: in small calcareous lenses within siltstones in the skarn zone and in a fault zone 2000 feet from the intrusion. Samples from a 300-foot section of the fault zone returned these averaged assays:

7.4% Pb, 9.2% Zn and 0.58 oz Ag/ton. Samples from the skarn zone, averaged assays gave: 1.7% Pb, 5.6% Zn and 1.38 oz Ag/ton.

Current Work and Results:

Getty Mines optioned the property and in 1972 mapped it on a scale 1 inch to 400 feet. Trenches, amounting to 450 cubic yards, were blasted in mineralized areas and were systematically sampled. Fourteen line-miles of magnetometer work was completed on the property, and a regional reconnaissance prospecting program was begun. Eight diamond drill holes, totalling 3,500 feet tested possible mineralized zones.

Assay results from the trenches were generally low. The sample assay averaged: 5.62% Zn, 1.70% Pb, and 1.38 oz/ton Ag. The best 5-foot sample assayed: 18.8% combined Pb-Zn.

Four mineralized skarn zones were found as well as the main vein which is estimated to contain 1.63 MM tons grading 5.12% Pb, 5.42% Zn, and 0.71 oz/ton Ag over 6.8 feet. Three drill holes intersected skarn zones, and core from the best hole assayed: 3.35% Pb, 2.22% Zn, and 2.56 oz/ton Ag over 13 feet.

GATE CLAIMS

Penarroya Canada Ltee.
1001, 10 King Street East,
Toronto, Ontario.

Cu, Pb
95 F/6,7
61°22'N, 125°00'W

References:

Douglas and Norris (1960); Harker (1963); Lord (1951)

Property:

GATE 1-83 T36451

Location and Access:

The GATE claims are located 4 miles southwest of "The Gate" on the South Nahanni River. Access by fixed-wing aircraft is possible by use of the Prairie Creek airstrip.

History:

The GATE claims were staked during 1970, to cover a mineralized vein and an associated stream silt and soil geochemical anomaly.

Description:

Mineralized float with galena, grey copper, malachite, and azurite was found downstream from a vein which outcrops intermittently on a steep talus-covered slope. The sulphides in the vein are erratically distributed in a quartz carbonate gangue. The vein strikes northerly, dips 60° westerly, is parallel to and near, or within a fault zone that brings the Sunblood Formation into contact with the top of the Whittaker Formation and base of the Delorme Formation.

Current Work and Results:

A geochemical grid sampling survey was initiated during 1971, to determine the lateral extent of the Gate Vein, and to discover any parallel mineralized structures.

Maps on a scale of 1 inch to 200 feet, accompanying the report, show the grades obtained for Ag, Pb, Zn and Cu in ppm. Only the anomalous concentrations adjacent to the vein are readily explicable, being downslope from exposed mineralization.

ED, JOE, and LEO GROUPS
North Valley Resources Limited
203, 415 - 3rd Street Southwest,
Calgary 1, Alberta.

Pb, Zn, Ag
95 F/7
61°27'N, 124°45'W

References:

Douglas and Norris (1960); Harker (1963); Lord (1951)

Property:

ED 1-15	T37701-15
JOE 1-8	A49001-08
LEO 1-8	A49009-16
LEO 22-35	A49022-35

Location and Access:

The claims are located 120 miles west of Fort Simpson, and 170 miles northeast of Watson Lake. Small fixed-wing aircraft can land on the airstrip at Prairie Creek, four miles to the north of the North Valley Resources Limited property.

History:

The ED, JOE and LEO groups were staked in February 1971 to cover possible extensions of the Cadillac lead-zinc-silver veins.

Description:

The area is underlain by Ordovician, Silurian and Devonian limestone, shale, and dolomite folded into a northerly striking series of anticlines and synclines. Northerly striking, westerly dipping thrust faults cut the sequence.

Current Work and Results:

A reconnaissance geochemical soil survey, together with IP magnetometer and EM surveys were completed in June, 1971. The soil samples were taken from the B-horizon, where possible, or from bedrock, and were treated for ammonium nitrate soluble heavy metals. EM surveys were completed with Ronka EM 16 and SE 300. Magnetometer and SP surveys were also performed but none of the survey methods was particularly successful and the results were termed "sporadic and inconclusive."

SNOW CLAIMS

Excalibur Explorations Limited (65%)
(formerly Bellcan Exploration Ltd.)
830 - 10th Avenue Southwest,
Calgary, Alberta.

Pb, Zn, Ag, Cu

95 F/7

61°28'N, 124°49'W

Stannex Minerals Limited (35%)
103, 1237 Burrard Street,
Vancouver, B.C.

Reference:

Douglas and Norris (1960)

Property:

SNOW 1-40 A48955-94
SNOW 41-46 A10301-06

Location and Access:

This group is located on the south edge of the Cadillac Explorations Limited Prairie Creek property, 120 miles west

of Fort Simpson. The Stannex Mineal Limited property is most easily reached by helicopter from the airstrip on the Cadillac Explorations Limited property which can be used by wheeled aircraft. A winter road from Fort Simpson to the property ends approximately five miles north of the SNOW claims.

History:

Claims were staked over a five mile length on the south side of the Prairie Creek property by Excalibur Exploration Limited and Bitter Creek Mining Limited. Stannex Mining Limited acquired the Bitter Creek interest in 1968, and 322 claims were pooled in a joint venture between Excalibur (65%) and Stannex (35%).

A reconnaissance geological and prospecting survey was completed in 1970. A few pieces of mineralized float, one of which assayed 12.25 oz/ton Ag, were found in the area but no bedrock source was found for these.

Description:

The area is underlain by Devonian limestone, dolomite and shale on the eastern limb of a north striking, southerly plunging anticline that is crosscut by two northerly striking, westerly dipping thrust faults which converge on the Cadillac property to the north.

Current Work and Results:

A geochemical survey consisting of three parallel east-west lines spaced 1500 feet apart and sampled at 25 foot intervals was conducted in 1971. Twelve anomalies interpreted from the data seem to outline two parallel zones.

PROSPECTING PERMIT 287	Zn
Texasgulf Inc.	85 F/8
(Ecstall Mining Limited)	61°22'30"N, 124°15'W
36th Floor, Toronto-Dominion Centre,	
Toronto, Ontario.	

Reference:

Douglas and Norris (1960)

Property:

Prospecting permit 287	85 F/8
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Location and Access:

Prospecting permit 287 lies in the Nahanni Mining District and covers that part of NTS area 95 F/8, lying north of the Nahanni National Park. Most of the area is very rugged particularly the western portions which lie within the Canyon Ranges of the Mackenzie Mountains. The eastern edge of the quadrangle includes foothills and the western part of the Mackenzie Plain.

Airstrips at Simpson, Nahanni Butte, and in the valley of Prairie Creek, about 20 miles northwest of the centre of the quadrangle allow access for heavy aircraft.

A few lakes, mainly along the edge of the Mackenzie Plain, are suitable for aircraft, as is the Nahanni River which flows along the south edge of the quadrangle.

Aircraft equipped with oversize tires can land on some of the bare mesa-like mountain tops developed mainly on the Nahanni Formation.

History:

Ecstall Mining Limited acquired permit 287, in 1972 to cover an area in which a 1971 reconnaissance prospecting-geochemical survey had shown some favourable situations. Prior to this work, little prospecting had been done in the area as it is very difficult to traverse.

Description:

The area covered by permit 287 includes a portion of the Mackenzie Plain which is underlain mainly by Middle Paleozoic dark grey shale, and locally by Middle Devonian Nahanni Formation

composed of thick bedded bioclastic limestone shale and dolomite. The same rocks are well exposed in the Nahanni Plateau to the west but older formations including widespread dolomite and shale, possibly equivalent to or older than the Nahanni Formation are also present. Dolomites of Pre-Devonian age occur locally in the most deeply exposed areas. Douglas and Norris (1960) have published the only adequate map of this area.

Current Work and Results:

Following a general geological reconnaissance and some stream sediment geochemistry, part of a widespread program of prospecting favourable limestone-dolomite-shale transitions in the eastern Cordillera, Ecstall Mining Limited obtained this permit in 1972. That summer, a limited amount of detailed prospecting and geochemical exploration followed up the favourable indications obtained previously. Some stratigraphic sections were measured and sphalerite was noted in place and in float. Details of the results have not been released but no claims have been staked and all of the permit area was released in 1973.

PRAIRIE CREEK PROPERTY	Pb, Zn, Ag
Cadillac Explorations Limited	95 F/10
570, 407 - 8th Avenue Southwest,	61°33'N, 124°48'W
Calgary 2, Alberta.	

References:

Douglas and Norris (1960); Thorpe (1972)

Property:

ASH 1-30	N66410-39	LCM 1-8	T36411-18
ASH 31-56	T36431-56	WES 1-34	T36001-134
ASH 57-68	T36135-46		

Location and Access:

The property is located on Prairie Creek, 15 miles north of the South Nahanni River and 120 miles west of Fort Simpson. It is most easily reached by fixed-wing wheel-equipped aircraft from Fort Simpson, but is also accessible by winter road from Fort Simpson.

History:

The mineral showings were first discovered by Indian trappers who brought it to the attention of Dominion Explorers Limited in 1928. Details of early staking up to the 1950's are unknown. The TL claims were staked in June, 1959, by R. McBean for the Nahanni Sixty Syndicate, a group of 23 companies and individuals which later incorporated into Redstone Mining Limited. Major interests in the Syndicate were held by Fort Reliance Mines Limited, Westfield Mines Limited, Rio Tinto Canada Exploration Limited, Guggenheim Brothers and Homestake Mining. The area was restaked by F. Nelson in July, 1965, as the SILVER claims and were optioned by him and J. McAvoy to Cadillac Explorations Limited in 1966. In April, 1966, Cadillac Explorations Limited obtained prospecting permit (#49) covering a wide area around the showings, initiated a bulldozer trenching program and drilled four short x-ray holes. In 1967, more trenching, an EM survey, five drill holes totalling 1200 feet, and two airstrips were completed. In 1968, additional claims were staked and 37 diamond drill holes totalling 6400 feet were completed along with 1000 feet of adit, and over 40 miles of winter road. Cadillac completed 5,300 feet of drifting and 9,100 feet of diamond drilling in 1969. The property was optioned to Penarroya Canada Limited in March, 1970, who did 4,400 feet of drifting and 16,200 feet of diamond drilling on the property.

Description:

Twelve mineralized zones have been found along a length of eight miles. The description of these zones will be given separately.

Zone No. 1, a galena-rich vein located east of Prairie Creek, strikes 315°. A channel sample taken across the 18-inch width of this vein assayed 61.78% Pb, 1.43% Zn, 2.77% Cu and 49.65 oz/ton Ag.

Zone No. 2 is located 400 feet southwest of the No. 1 zone and consists of two parallel galena rich veins, exposed over a length of 160 feet. The hanging wall vein attains a four-foot width. Channel samples collected across a 4½-foot width were assayed and gave the following results:

<u>Cd (%)</u>	<u>Zn (%)</u>	<u>Pb (%)</u>	<u>Ag (oz/T)</u>
0.062	13.25	52.50	35.80
0.056	7.60	64.75	37.00
tr	8.10	62.70	40.00
tr	7.90	62.15	37.75

Zone No. 3: The main vein of this zone is four feet wide at its northwest end and it divides to form a sheeted vein 23 feet wide near its southeast end. The sheeted vein converges into a 2½-foot wide vein that changes to a sheeted vein 54 feet wide farther southeast and then narrows to a 1½-foot wide vein. Channel samples taken over widths from 0.3 to 2.9 feet along a crosscut were assayed and the results were as follows: trace to 7.2% Cu with an average of less than 1% Cu; 22.4 to 72.1% Pb with an average of around 40% Pb; and 7.7 to 62.4 oz/ton Ag with an average of around 20 oz/ton Ag. The No. 3 zone is the best zone found to date, and most of the work has been done on it. Extensive oxidation in the upper levels of the zone have resulted in lower assay values there than at depth: typical assays of the 2 ores follow.

	<u>Average Width(ft)</u>	<u>Zn(%)</u>	<u>Pb(%)</u>	<u>Cu(%)</u>	<u>Ag(oz/T)</u>
oxidized ore	6.1	6.5	11.3	0.2	4.1
primary ore	7.8	24.2	19.5	0.8	10.1

As a result of the 1970 work, Penarroya Canada Limitee estimates ore reserves, mainly in No. 3 zone, of 1.0 million tons grading 13.7% Zn, 11.5% Pb, 0.3% Cu and 5.8 oz/ton Ag.

Zone No. 4 is a mineralized boulder that assays: 72.1% Pb, 1.50% Zn and 19.35 oz/ton Ag. It was found 850 feet south of the adit entrance, but the bedrock source has not been located.

Zone No. 5 vein is exposed in a pit west of Prairie Creek. It consists of lead, zinc and silver minerals distributed in pods. Assays of samples taken from this pit are as follows:

<u>Width(ft)</u>	<u>Zn(%)</u>	<u>Pb(%)</u>	<u>Ag(oz/T)</u>
3.0	4.9	26.2	8.1
3.0	23.2	24.5	9.1
2.5	13.8	41.2	16.9
3.5	24.1	30.3	20.5
2.5	9.6	32.3	20.3
3.0	20.6	28.4	11.8

Zone No. 6 is located ¾-mile south of No. 5 zone on a steep slope south of Galena Creek. Lead, zinc and silver minerals are reported to occur in pods, much the same as in the No. 5 zone.

Zone No. 7 vein is located one mile south of the No. 6 zone. The vein is exposed over a length of 700 feet and averages five feet in width. A bulk sample taken across a five-foot width assayed: 0.77% Cu, 4.55% Zn,

14.4% Pb and 11.67 oz/ton Ag. Two previous channel samples taken from this vein assayed: 0.25% Cu, 17.1% Pb, 14.2 oz/ton Ag; and 2.75% Cu, 67.0% Pb and 57.4 oz/ton Ag.

Zone No. 8 is located $1\frac{1}{4}$ miles south of the No. 7 zone and has been exposed over a length of 1000 feet. Lead-zinc-silver-copper mineralization is found over a vein width varying between two and eight feet. Channel samples from trenches on this zone were assayed and the results are as follows:

Width(ft)	Cu(%)	Zn(%)	Pb(%)	Ag (oz/T)
2	0.19	16.4	46.0	12.7
7	0.17	16.4	7.4	4.28
8	0.13	13.9	16.0	4.48
8	0.15	18.9	14.2	5.2
7	0.36	4.13	20.4	9.7
4	0.18	6.93	23.7	10.0
5	0.14	13.8	9.5	6.1
6	0.37	21.1	15.5	8.2
7	1.19	9.6	12.0	12.1
6	0.56		29.4	14.9

Zone No. 9 lode is exposed on a steep hillside on the south boundary of claim sheet NTS 95 F/10. It is up to 35 feet wide. Assay results from a grab sample are: 1.26% Cu, 7.52% Zn, 56.4% Pb and 26.8 oz/ton Ag.

Zone 10, 11 and 12: Lead-zinc-silver mineralization has been reported from these three zones but there has been no stripping, trenching or drilling done on them so the extent of these mineral deposits is unknown.

Current Work and Results:

A soil geochemical survey was completed in 1971. A total of 765 samples were taken over 10.4 line-miles and these were analyzed by atomic absorption methods for Pb, Zn, Ag and Cu. All the anomalies detected were located over known mineralized zones and no new occurrences were found.

During June and July, of 1971, 1,155 feet of lateral development and 331 feet of raising were completed to establish vertical continuity and determine grade of the ore zone. Feasibility studies for production were also done during 1971-1972, but cost, metal prices and transportation facilities apparently were not considered favourable.

LIN and PIN GROUPS
Mt. Hyland Mines Limited (NPL)
25, 245 Howe Street,
Vancouver, B.C.

Cu, Pb, Zn
95 G/2
61°12'N, 122°46'W

References:

Douglas and Norris (1960); Roed (1969); Thorpe (1972)

Property:

LIN 87, 88	T17174-75
LIN 91-96	T17178-83
PIN 27, 44	T17627, T17644

Location and Access:

These claims are located 65 miles southwest of Fort Simpson on the east bank of the Liard River. The property is most easily reached by float-equipped fixed-wing aircraft from

History:

The LIN and PIN claims were staked in 1967, and were acquired by Mt. Hyland Mining Ltd. and Ramada Mining Ltd. who formed a new company, Ram-Hy Exploration Ltd., to hold the property. Preliminary trenching and gravity surveys along with six diamond drill holes totalling 3,500 feet were completed in 1967. In 1968, four holes totalling 700 feet were drilled northwest of the Liard River but failed to reach bedrock. Another hole 1380 feet long was drilled south of the river.

Description:

This area is extensively overburden covered and is underlain by relatively flat lying fissile shales of the Upper Devonian Simpson Formation (unit 23, Douglas and Norris, 1960). Well log data from nearby drill holes indicate the Simpson shale is underlain by Middle Devonian Nahanni Formation limestone (unit 22, *ibid*). Chalcopyrite, pyrite and minor galena and sphalerite occur in silicified and carbonatized breccia zones which are up to 80 feet wide and 900 feet long. The best surface samples assayed: 5.8% Cu across 4.5 feet and 4.7% Cu across 3 feet.

Current Work and Results:

A grid was established and 4.5 line-miles of magnetometer survey and 2.2 line miles of IP survey were completed. The IP survey outlined one north trending anomaly almost 14,000 feet in length and two smaller anomalies. One of the small anomalies was north trending while the other trended east. No anomalies were outlined by the magnetometer survey.

JET CLAIMS

John Goodall

Fort Simpson, N.W.T.

Pb, Zn, CaF_2

95 J/14

62°58'N, 123°15'W

Reference:

Douglas and Norris (1963)

Property:

JET 1-16 A7770-85

Location:

This property is located on Old Fort Island 10 miles southeast of Wrigley.

History:

The JET claims were staked by John Goodall and L. Norwegian in August 1969. No previous staking or work on the property has been recorded. Geological and geophysical surveys done in 1970, outlined three weak EM conductors.

Description:

The area is underlain by argillaceous limestones and shales of the Upper Devonian Simpson Formation to the north and limestones of the Middle Devonian Nahanni Formation to the south. The contact between the two formations strikes east-west through the middle of the island.

Galena and sphalerite mineralization occurs in north-northeast striking tension fractures. The main vein, striking N7°E and dipping vertically, averages about 18 inches wide over a 150 foot strike length and contains 20% galena and minor sphalerite in a siliceous dolomite matrix. The Pb-Zn sulphides occur as massive lenses within the vein, and as disseminations throughout the vein and in the wall rocks within eight feet of the vein.

Vein No. 2 is located 280 feet east of vein No. 1 and averages six inches wide over a strike length of 300 feet. The vein strikes N19°E and has a vertical dip. Sphalerite is the major sulphide in this vein - it contains 5 to 10% total sulphides. The No. 3 vein averages three inches in width over an exposed strike length of 120 feet and contains less than 1% combined galena and sphalerite.

A geological and geophysical report completed in 1970 outlined three weak EM conductors.

Current Work and Results:

In March and August 1972, 5.4 line-miles of IP survey was completed. A number of anomalies were outlined, some were attributed to permafrost but others were considered to reflect bedrock anomalies and to warrant further investigation.

In August 1972, three holes totalling 1100 feet were drilled to test these anomalies. Assays of the best drill core intersections follow (one hole cuts a concentration of fluorite).

Hole No.	Width (ft)	Pb (%)	Zn (%)	CaF ₂ (%)
1	1.6	0.05	8.2	0.18
2	5.1	0.06	0.13	32.5
2	1.0	0.15	31.5	0.06
2	3.0	1.16	11.8	3.79
3	5.0	0.05	-----	-----

COATES LAKE PROPERTY	Cu
Cerro Mining Company of Canada Limited	95 L/10
401, 44 Victoria Street,	62°40'N, 126°45'W
Toronto, Ontario.	

References:

Baragar and Hornbrook (1963); Boyle (1968); Gabrielse et al. (1965); Green (1965, 1966); Green and Godwin (1963); Hornal et al. (1974); Thorpe (1972)

Property:

RAY 1-35	T77951-85
LISA 1-14	T37587-600
LISA 15-25	T37449-50
RUBY 1-32	T37519-50

Location and Access:

The property is located on the west side of Coates Lake (formerly Little Dal Lake) in the Redstone River area, 100 miles east of Macmillan Pass. It may be reached by float-equipped, fixed-wing aircraft from Watson Lake, 250 miles to the southwest or from Fort Simpson, 200 miles to the southeast.

History:

The Nahanni Sixty Syndicate which was incorporated into Redstone Mines Limited in 1961 explored this area in 1960 and 1961. In 1962, Redstone Mines Limited held three prospecting permits in this region and had a 25 man helicopter supported crew exploring the area. Additional mapping and geochemical sampling was done in 1964 and 1968. The property was optioned to Cerro Mining Company of Canada Limited in 1970-1972, who took the claims on lease in 1971.

Description:

Pink and maroon weathering Jan Marie Formation, fine-bedded siltstones with thin mudstone partings, contain most of the copper occurrences as mineralized beds of finely bedded grey, buff or grey-green limestone and silty limestone. The thickness and number of copper beds varies from place to place but generally they have a remarkable continuity. The copper bearing limy beds may be intercalated with the red siltstone and probably represent a transition from a red bed environment to deep water conditions.

The Jan Marie red beds are conformably overlain by the limestone and dolomites of the Cleo Formation which has three divisions. The lowest unit is a mottled flaggy dolomite which grades laterally towards the south through a pyritic quartzite into a conglomerate as the facies changes. The overlying middle unit is a dark grey to black, massive or thickly bedded, fetid limestone. The upper unit of the Cleo Formation is pale grey weathering, dark grey limestone containing interbedded lenses of conglomerate and cherty limestone. At the top of this unit a one foot thick band of pale green, finely pyritized limestone is overlain by a 3 to 4 foot thick bed of limestone conglomerate. A slight angular unconformity marks the contact of the overlying Rapitan Formation.

The Lower Rapitan contains purple greywackes, siltstones, shales and minor conglomerates. The bottom beds are calcareous and contain minor pyrite and chalcopyrite while near the top there are bright red mudstones containing minor hematite. The Upper Rapitan contains minor shales and greywackes made up of quartz, volcanic, quartzite and carbonate fragments.

The copper bearing sediments are bound by two major thrust faults, a northwest fault and a northerly one and form part of a broad syncline which plunges to the north.

Copper mineralization occurs in seven distinct beds, five in the pale grey-green finely laminated limestone and silty limestone of the Upper Jan Marie Formation and two beds in the overlying flaggy dolomite of the Cleo Formation. These are exposed along the eastern flank of Jan Marie Mountain for four miles and over a width of 180 to 250 feet, although at any one locality the cupriferous beds may be barren or missing altogether. The individual cupriferous beds may range from a few inches to over 20 feet thick. The richest bed is the bottom copper bed in the Jan Marie Formation.

Primary mineralization consists of pyrite, chalcopyrite, bornite, digenite, chalcocite and covellite with secondary malachite and azurite. Chalcopyrite is disseminated throughout the copper zones but chalcocite, bornite and digenite are found only in the two lower copper beds. Disseminated chalcopyrite, and occasionally pyrite, are found in both the Lower and Upper Rapitan.

Two main copper zones were outlined, a north zone 9,100 feet long grading 2.3% Cu over a width of 6.5 feet and a south zone 6,400 feet long grading 3.74% Cu over 5.5 feet and in which one section assayed 5.27% Cu across 9.5 feet. The copper-bearing beds were sampled for a total length of 19,000

feet in 1962. Four zones assayed 6% Cu over six foot sections while ten others assayed 2% Cu over six foot sections.

In 1963, soil sampling, trenching and diamond drilling were undertaken. Eighteen holes were drilled for a total footage of 5,300 feet. Copper mineralization was encountered in 90% of the holes and the best core intersections assayed: 1.67% Cu over 52 feet, 2.10% over 45 feet, 1.98% Cu over 25 feet and 2.58% over 20 feet. In 1964, another 27 holes drilled for a total of 17,300 feet, yielded core samples that indicated a zone 1,100 feet thick grading 2.5% Cu.

In 1968, a geochemical and geophysical program was initiated in the Coates Lake area but most of the data was lost in a plane crash. In 1970, Cerro Mining Company of Canada Limited completed a soil geochemical survey over the property for lead and copper. Six anomalous copper zones found on the RAY claims were mainly attributed to slope and pH changes although some may reflect mineralization within the Rapitan Formation.

Current Work and Results:

A geological survey was completed over the area in 1971. The property was mapped and copper mineralization was found predominantly within the Jan Marie Formation. An extensive drill program was completed but the results have not yet been released.

A geochemical survey on the RAY 25 to 28 and RAY 34 and 35 claims; RUBY 1 and 2, RUBY 13 to 15 and RUBY 26 to 31 claims; LIZ 1 to 4 and 7 to 36 claims; LISA 1 to 9, 12 to 19 and 22 to 25 claims; and SP 37 and 40 claims was completed in 1971 as a follow-up to geochemical work done in 1970. (See Hornal et al. 1974). Samples were taken from the B-horizon every 200 feet along lines spaced 800 feet apart. Three anomalous copper zones were found in soils overlying Lower Rapitan and Jan Marie Formation rocks.

A regional stream sediment survey was completed over parts of NTS 95 L/14,15 and 95 M/2,3 in August 1971. Over 900 stream samples were collected at 1000-foot intervals along the main channel and tributaries of the upper Redstone River. The samples were analysed for copper, lead and zinc soluble in 0.5 N cold HCl.

Two areas of anomalous copper values were found, one on Crowberry Creek and the other on Mackenzie Creek. These anomalies were attributed to weathering sulphides within Jan Marie, Cleo or Rapitan Formation. At least ten spot anomalies

were found and since one of these is near a showing, it is possible that the other anomalies also indicate showings.

Two zones of anomalous lead values, one in the north-west corner of the survey area, and the other in the Mackenzie, Johnson and Cristian Creek area were outlined. The former area is underlain by Proterozoic dolomitic sandstones. No lead showings had been found in these anomalous areas. The zinc anomalies generally appear in the same zones as the lead anomalies but are more extensive, probably due to the higher mobility of zinc.

In 1971, Cerro Mining Company of Canada Limited drilled four deep holes, some of which intersected copper values. The best core intersection, of a zone 4.8 feet thick, averaged: 5.6% copper and 0.13% molybdenum. Two of the holes, drilled on the south end of the deposit, reached a depth of 2000 feet. Two shallower holes were drilled 4 miles to the north. This program was designed to test a flat lying portion of the deposit.

PROSPECTING PERMIT 273

FRY and FB GROUPS

Cominco Ltd.

200 Granville Square,

Vancouver 2, B.C.

Pb, Zn

95 0/4

63°07'30"N, 123°45'W

References:

Bostock (1948); Douglas and Norris (1963)

Property:

Prospecting permit 273

FRY 1-37 A35801

FB group A3805

95 0/4

Location and Access:

The Wrigley River area (95 0/4) covered by permit 273 lies on the west bank of the Mackenzie River, a relatively accessible area. A gravel airstrip at Wrigley, across the river to the east, has a weekly scheduled air service link with Fort Simpson and Yellowknife. A dry weather route can be followed from the river to the FRY claim area but helicopter is the main mode of transport to most of the permit area.

History:

Following a prospecting geological reconnaissance survey of the Paleozoic carbonate units in the region, permit 273 was obtained in 1972.

Some prospecting was done in the area previously, as the LEO claims (83508) were staked by L. Norwegian in August, 1967 to cover lead-zinc float found near the mouth of the Wrigley River. A stream sediment geochemical survey was subsequently completed along the lower reaches of the Wrigley River by Giant Yellowknife Mines Ltd. but no anomalies were found. The FB claims (T95173) were staked in August, 1970, by Cominco Ltd. to cover lead-zinc showings found by their prospectors earlier that summer. Some trenching and continued prospecting in 1971 extended the mineralized zone, after which Cominco Ltd. staked the FRY claims and obtained prospecting permit 273.

Description:

The Wrigley River area includes parts of the Mackenzie Plain, the northernmost parts of the Camsell Range, and the southwestern spur of the McConnell Range (Bostock 1948). Douglas and Norris (1963) have described the regional geology. The plains in this area are underlain mainly by Upper Devonian shale, siltstone and sandstone; calcareous sandstone and shale; and shale and mudstone of the Fort Simpson Formation. Older rocks from Ordovician(?) dolomite to upper Middle Devonian Headless and Nahanni Formations are exposed in overthrust core of the Camsell Range. In the Wrigley anticline, Fort Simpson Formation is exposed over a broad area and presumably lies directly on the Nahanni Formation.

Facies changes between various dolomite and limestone units and shaly or argillaceous units occur in the Upper Devonian within the Wrigley area and in the Middle Devonian in the Dahadinni River area to the west.

The area of main interest lies within a north to northeasterly trending ridge which has been divided into three sets of hills on its northeastern extension. Small sink-holes and solution caves are common along its length. An anticlinal fold axis strikes along the length of this ridge. The western part of the ridge is underlain by limestone of the Middle Devonian Nahanni Formation which dips 30 to 40° to the west. It is a massive, black, fossiliferous, argillaceous limestone that has a fetid smell on a fresh surface. The base of the Nahanni Formation is marked by a one foot thick silty laminated limestone which is underlain by Headless Formation shale. The Headless

Formation is relatively thin in this area and is usually poorly exposed. The eastern part of the ridge is underlain by Arnica Formation dolomite which dips steeply to the east. The north to northeasterly trending Camsell Thrust Fault is located along the east side of the ridge and has brought Middle Devonian sediments (unit 14, 16 and 11 of Douglas and Norris, 1963) into fault contact with Upper Devonian shales, siltstones and limestones (unit 25, op. cit.).

Current Work and Results:

During 1971, personnel of Cominco Ltd. prospected and trenched to extend the mineral showings in the Camsell Range. The 37 FRY claims were staked that year and in 1972 permit 273 was obtained.

The 1972 exploration program included widespread prospecting, trenching, geochemical and IP surveys and a small amount of diamond drilling. Detailed stratigraphic measurements and structural studies were made to establish an accurate geological framework.

A soil geochemical survey was conducted by taking 129 soil samples from the brown "B" soil horizon wherever possible, or the "A" horizon if necessary. Samples were taken at 200 foot spacings on 14 cross lines spaced approximately 800 feet apart. At the north end of the survey area three additional lines running normal to the cross lines were sampled.

Approximately coincident lead and zinc soil anomalies disclosed by the survey extend intermittantly from the FRY 20 claim on the southwest to the FRY 1 claim at the northeast end of the surveyed area.

Ten trenches were dug and blasted to expose the main showings. Three trenches expose showings near the south edge of the FRY No. 1 claim and 7 trenches expose the second showing near the centre of the same claim.

The dominant ore mineral is a low-iron, red to dark brown sphalerite disseminated through limestone. A minor component of galena is present which gives grades varying from 0.5% to 2% Pb. Pyrite is present in small amounts in one or two pits but iron sulphide may be common in the unweathered mineralization, as iron oxides are locally abundant. A small content of silver, averaging slightly over one ounce per ton is reported. Highest grades vary from 24% zinc across 3½ feet to 11% zinc across 6½ feet.

The mineralization is found mainly in the Headless Formation, a unit of flaggy greyish, argillaceous limestone containing abundant bitumen. This unit ranges around 200 feet in thickness. In places the ore minerals appear to be in distinct beds, but elsewhere they appear to lie along fault zones.

An IP survey was completed over part of the FRY group in 1972, but bituminous limestone and rugged terrain made the results inconclusive. Five diamond drill holes totalling approximately 850 feet tested this zone and although lead-zinc mineralization was found, the reported intersections were generally short and low grade.

Cominco Ltd. has two more showings within the permit area; the Root showing (63°08'30"N, 123°37'30"W) and the Bourne showing (63°07'N, 123°38'30"W), approximately nine miles southwest of the FRY showings. Another diamond drill hole was collared on the Bourne showing but freezing conditions permitted only 88 feet of drilling.

The Bourne showing consists of massive lenses of galena along the western edge of a fracture zone. The fracture zone is marked on the surface by a 60-foot wide, northerly trending gully between two ridges. Coarse crystalline calcite is found within this fracture zone, in patches while silicification and dolomitization are common within 10 feet of the fracture zone. Galena also occurs as small anhedral disseminated crystals which have eroded out on some weathered surfaces. Sphalerite occurring as yellow, circular shaped blebs which were generally weathered and friable, is not found in every section of the zone. A few unweathered samples of sphalerite were seen but it is generally much rarer than galena.

This "primary type" mineralization occurs along the edges of the fracture zones and is reported to embay along the bedding of the limestone. It is suspected that galena and sphalerite occur within the main fracture zone itself but drill core recovery has been poor in this zone.

"Secondary type" mineralization occurs as smithsonite and cerussite along fractures in limestone in the Nahanni Formation. The smithsonite-cerussite minerals are laminated along the walls of the fractures and in some instances have a dyke-like appearance, crosscutting the limestone bedding. In other occurrences these secondary minerals are botryoidal and have the appearance of a "gnarled root" (Hence - the "Root showing"). The secondary zinc has a rusty brown colour. Small blebs of galena and sphalerite may occur within the smithsonite-cerussite mineralization and visa-versa, although usually one type predominates.

PROSPECTING PERMITS 266 and 267

Arjay Kirker Resources Limited
920 Three Calgary Place,
Calgary, Alberta.

97 C/1,8
69°15'N, 124°30'W

References:

Craig (1960); Lord (1951); Yorath et al. (1969)

Property:

Prospecting permit 266	97 C/8
Prospecting permit 267	97 C/1

Location and Access:

The permit areas are located on the south shore of Darnley Bay on Amundsen Gulf. Access from Yellowknife, approximately 570 miles to the southeast, is by float- or ski-equipped aircraft.

History:

On April 1, 1971 Arjay Kirker Limited was granted permits 266 and 267 to cover the western half of the largest isolated gravity anomaly so far discovered in the regional mapping program of the Earth Physics Branch of the Department of Energy, Mines and Resources.

Description:

Extensive glacial and glacio-fluvial deposits cover much of the permit areas and include, along the margins of Darnley Bay, glacially related marine depositional features, deltaic deposits, sand dunes and tundra polygons. These unconsolidated deposits range in thickness from zero to over two hundred feet. The only rock unit exposed is a Cretaceous bentonitic silty shale unit.

Current Work and Results:

During 1971, some 315 square miles were evaluated by air photo interpretation to determine if there was useful structural and stratigraphic information that might serve as a guide to future geological investigation. Further investigation of fracture distribution is recommended in the geological report along with a geochemical study along major lineaments, and fracture intersections, as such fractures may have served as conduits for dispersion of elements upward through overlying strata, resulting in subtle geochemical anomalies at the surface.

PROJECT MONSTER

Northgate Exploration Limited

97 D/5

NGX Canada Limited

69°17'N, 123°40'W

Suite 2602 Royal Trust Tower,
Box 27, Toronto-Dominion Centre,
Toronto 3, Ontario.

References:

Balkwill and Yorath (1970); Hornal et al. (1969); Riddihough and Haines (1972); Stacey (1970); Yorath et al. (1969)

Property:

250 PAT claims A19020-71

Location:

The PAT group is located immediately south of Darnley Bay on Amundsen Gulf, about 240 miles east-northeast of Inuvik. The village of Paulatuk lies a few miles northwest of the claim group.

History:

The PAT group was staked in July 1970 to cover an extreme gravity high first noted by Earth Physics Branch survey crews (Hornal et al. 1969).

Description:

The Darnley Bay area is of interest because of the spectacular Bouguer anomaly at the south end of the bay. The anomaly which is almost circular with an elongation to the south, reaches 130 milligals above the regional field and is coincident with large magnetic anomalies. Preliminary calculations on the gravity (Hornal et al. 1969) and magnetic fields (Riddihough and Haines, 1972) suggest a depth to the causative body of approximately two miles. The anomaly is almost certainly caused by rocks of Precambrian age which are overlain by at least 6,000 feet of dolomite and shale of Proterozoic age. Above this lies 1,750 feet of Lower Paleozoic marine sedimentary rocks and 700 feet of Cretaceous rocks. As much as 200 feet of Pleistocene glacial deposits overly the Cretaceous rocks.

Current Work and Results:

In 1971, geological mapping was performed over the claims but because of the depth of the causative body such surveys could not add appreciably to the understanding of the body.

In 1971, some 315 square miles were evaluated by air photo interpretation for structural and stratigraphic information as a guide to future geological investigation. The presence of well developed fault and joint patterns, along with favourable lithology at depth is considered by Northgate consultants to indicate that the Darnley Bay area rocks may be mineralized in ways similar to the basalts of the Coppermine River area that contain copper lodes.

In April, 1972, a seismic reflection survey was run across the body. A series of reflection shots outlined the presence of an anomalous mass which had its edge under shot point #28 at a depth of 10,000 to 11,000 feet. The mass dips to the east and probably thickens in that direction too.

In the summer of 1972, a 12.5 mile long magnetometer survey line was flown. A very steep western gradient along the entire length of the line indicates the possibility of a large high-density mass beneath the eastern portion of the line. The principal gradient-causing mass, east of the line, is many thousands of feet thick if composed of rocks with specific gravity of about 3.1.

CANTUNG MINE	W, Cu
Canada Tungsten Mining Corporation Ltd.	105 H/16
505, 67 Richmond Street West,	61°58'N, 128°15'W
Toronto, Ontario.	

References:

Blusson (1968); Craig and Laporte (1972); Green (1965, 1966); Green and Godwin (1963); Findlay (1967, 1969a, 1969b); Skinner (1961, 1962)

Property:

84 claims

Location and Access:

The Cantung Mine is in the Selwyn Mountains, 130 miles north of Watson Lake, near the headwaters of the Flat River. The local setting is a small, east-facing cirque, with the open pit orebody at 5,000 feet elevation. The mill and townsite, just above the Flat River, are at 3,700 feet elevation and joined to the open pit by 3 miles of switchback haulage road. A 130-mile long road joins the property to the Robert Campbell Highway, 67 road-miles from Watson Lake.

History:

The deposit was discovered in 1954 and explored by Northwestern Exploration Limited in 1955 and 1956. After the claims lapsed in 1958, they were restaked by Mackenzie Syndicate that year and explored by diamond drilling from 1959 to 1961. In 1962, an all-weather road was constructed to the property. Prior to this time most service was by aircraft, with one winter truck haul being made. Production in 1962 and has been continuous since that time except for an eight month period, September 1963 to May 1964, a time of low tungsten prices, and an eleven month period, January 1967, to November 1967, while the mill was being rebuilt following a fire late in 1966.

The main exploration at the Cantung property in recent years has been designed to locate a deposit similar in grade and characteristics to the original open pit ore body. A secondary part of the program was to delimit the extent and grade of the tungsten-copper mineralization in the chert which immediately underlies the high grade open pit orebody.

Description:

The Cantung deposit is in a northwest trending syncline of Lower Cambrian limestone which is overturned to the north-east. Within the lower (upright) limb, a diopside-garnet-epidote skarn is host to the ore. The deposit proper is a shallow southwest dipping lens about 300 feet wide and up to 65 feet thick. Ore occurs as fine scheelite disseminated in a massive- to heavily-disseminated pyrrhotite-chalcopyrite matrix and as veins and lenses of coarse-grained quartz, calcite and scheelite which cut the massive sulphides. Below the skarn lies pale grey-green banded chert mineralized with scheelite-bearing pyrrhotite.

Current Work and Results:

A new ore body, called the E-Zone was discovered approximately 2,000 feet northeast and 1100 feet below the open pit ore body. Surface drilling in late 1971, and again during the exploration season of 1972, generally outlined the size, grade and attitude of the ore body. In October of 1972, an adit was being driven toward the new ore body from a site just above the mill.

In 1973 reserves in the new zone were estimated to be 4.3 million tons of 1.7% WO_3 which at the present rate of production would add years to the mine's life.

The surface diamond drilling program in 1971 delimited the extent of the lower grade chert mineralization underlying the open pit, and extending to the NE. These reserves are estimated to exceed 3,000,000 tons grading 0.61% WO₃. Possibly 1,000,000 tons of this material grading 0.70% WO₃ might be mined from an open pit while the remainder would have to be extracted from underground. Due to the lower grade and metallurgical problems, the chert mineralization is not ore at present.

TABLE IX
Production Statistics
Cantung Mine

Year	Tons Milled Per Day	Tons Ore Milled	Grade (Average)		Work Force	Production	
			Cu %	WO ₃ %		Cu lbs	WO ₃ lbs
1971	Na	¹ 176,813	Na	¹ 1.19%	Na	Na	¹ 3,288,400
1972	466	Na	.62%	.94%	84	214,851	⁺ 3,174,120

¹Canada Yearbook 1971; ⁺Canadian Mining Journal, February 1974;
Na Not available, but approximately the same as 1972.

LS and Y CLAIMS
Canex Placer Ltd.
700, 1030 West Georgia Street,
Vancouver, B.C.

Pb, Zn, Ag
105 I/6
62°27'N, 129°12'W

Reference:

Green et al. (1968)

Property:

LS 1-151
Y 1-117

Location and Access:

The Canex property is located 180 miles north of Watson Lake and 10 miles east of Summit Lake, which is easily reached by fixed-wing float- or ski-equipped aircraft from Watson Lake or Ross River. A helicopter can be used to gain access to the individual properties.

History:

Canex Placer Ltd. initiated a regional exploration program in 1966 to systematically explore the area north of Cantung. This program consisted of stream sediment sampling, and follow-up prospecting and geological mapping.

Description:

The Summit Lake area lies within the Selwyn Mountains, which are comprised of a sequence of Helikian to Mississippian age carbonate and clastic rocks that have been intruded by Cretaceous quartz-monzonite stocks. The sediments follow a general northwesterly strike and have been folded into a series of anticlines and synclines with the fold axes striking northwesterly. These strata have been faulted by northwesterly and northeasterly striking thrust faults.

Lead-zinc mineralization occurs as very fine grained galena and sphalerite in laminated bands within a black, slightly calcareous, graptolitic shale. The mineralization is difficult to see in hand specimens except where it is concentrated along thin shear planes. The main mineralized zone is located on the southwesterly facing slope of a rounded, northwest trending ridge. This ridge is mostly covered with overburden and only rarely is bedrock exposed, although frost heaving and scree slopes indicate the general rock type. Bulldozed trenches that cross the face of the hill expose deeply weathered black graptolitic shale. These trenched "exposures" do not provide reliable sources of structural information because of the effects of down slope soil creep and solifluction. Because of the deep weathering effects, the mineralized areas may only be marked by faint rusty gossans or by the presence of secondary lead-zinc minerals such as hydrozincite or smithsonite and cerussite.

The shale formation is a basin deposit and on this property is approximately 15 miles from time equivalent carbonate carbonate which formed on a shallow marine shelf. Lenses of black, recrystallized dolomite, along with thin chert bands and pyrite nodules occur within the shale formation. The shale is underlain by a wavy-bedded limestone. Published maps (Green et al. 1968) show that the mineralized area is located on the southwest limb of a syncline composed of shale (unit 18b, *ibid*) and underlying banded limestone (unit 7b, *ibid*). The host rock strikes to the northwest and was initially thought to dip steeply to the northeast but company geologists are finding the structure more complicated than was first thought.

Current Work and Results:

Geochemical samples obtained by Canex Placer Ltd. in previous regional exploration work were re-analyzed and a large zinc anomaly was found in the Summit Lake area. Detailed follow-up geochemistry delineated the main areas of interest and prospecting uncovered a few mineralized outcrops. A long northwest trending block of almost 500 claims was staked to cover the anomalous zone.

Trenches were bulldozed in an attempt to get fresh samples of the mineralization. As a result of this trenching program, Canex Placer Ltd. announced the discovery of mineralization over a strike length of 3 miles with widths up to 50 feet. The higher grade layers range from 10% to 30% combined lead-zinc while individual five-foot samples assay 40% to 50% lead-zinc.

CAM GROUP	Pb, Ag
Hudson Bay Exploration and Develop-	105 I/13
ment Company Limited,	62°55'N, 129°34'W
Box 28, Toronto-Dominion Centre,	
Toronto, Ontario.	

Reference:

Green et al. (1968)

Property:

16 CAM claims A49137-52

Location and Access:

The claims are located 30 miles southeast of Macmillan Pass and five miles northeast of Mount Wilson. Macmillan Pass may be reached via the Canol Road from Ross River, 150 miles to the southwest or by fixed-wing wheel-equipped aircraft. The property is most easily accessible by helicopter from Macmillan Pass.

History:

Silver-lead float was discovered in 1971 by Hudson Bay Exploration and Development Company Limited prospectors who subsequently staked the showing.

Description:

This property lies within the Selwyn Mountains, which are locally comprised of a series of folded and faulted northwesterly trending Paleozoic sediments that have been intruded by Cretaceous quartz monzonites. The claims are underlain by Devonian shale and argillite (unit 18b, Green et al. 1968) which have been folded into a N40°W striking anticline. Argentiferous galena and minor chalcopyrite occur as lenses and blebs within a quartz-carbonate vein that strikes parallel to local fold axes.

Current Work and Results:

Eleven Trenches were dug in an effort to expose the source of the mineralized talus. A mineralized vein up to six feet in width was exposed over 50 feet - talus and permafrost conditions precluded further trenching.

A 2,100 foot baseline parallel to the strike of the vein, with crosslines every 50 feet was established. Soil samples taken at approximately six inch depths were collected at 50 foot intervals over this grid. Another baseline perpendicular to the first was established to test the northerly extension of the vein. Lead content ranged from 12 ppm to greater than 6,000 ppm. An anomaly from 50 to 200 feet wide and at least 800 feet long, but still open to the northeast and southwest, was outlined.

PR CLAIMS
Arrow Inter-America Corporation
304, 535 Thurlow Street,
Vancouver, B.C.

Cu
105 I/15
62°46'N, 128°32'W

References:

Green et al. (1968)

Property:

PR 1-20 A16101

Location and Access:

This property is situated 60 miles north of Tungsten, N.W.T. and 180 miles north of Watson Lake. The area is most easily reached by fixed-wing float-equipped aircraft which land on O'Grady Lake. Helicopters can be used from there to reach the property.

History:

This claim group was staked by Pete Risby in July 1971 to cover copper mineralization he found while prospecting and the area was taken under permit in 1972 by Arrow Inter-America Corporation.

Description:

This area is in the Selwyn Mountains and locally a north-west striking belt of folded and faulted Paleozoic sediments intruded by Cretaceous granodiorite and quartz monzonite. The property is underlain by Lower Cambrian quartzite and shale (unit 18 in Green et al. 1968). Granitic rocks intrude the area and are surrounded by metamorphic aureoles.

Current Work and Results:

Five diamond drill holes totalling 786 feet were completed in July, 1972, by Caron Diamond Drilling (Whitehorse, Y.T.). The drilling tested a contact metamorphic aureole for mineralization.

Disseminated pyrite and pyrrhotite and minor chalcopyrite, concentrated along thin fractures, were found in metamorphosed quartzite and shale close to a granitic intrusion. The best intersection graded 0.69% Cu over 10 feet.

PROSPECTING PERMIT 288

RA GROUP

Arrow Inter-America Corporation

304, 535 Thurlow Street,

Vancouver, B.C.

Cu, Sb, Pb

105 I/15

62°52'N, 128°30'W

References:

Gabrielse et al. (1965); Garrett (1971); Green et al. (1968)

Property:

RA 1-8 A16180-89

Prospecting permit 288

105 I/15

Location and Access:

The permit area is located 50 miles southeast of Macmillan Pass, 80 miles north of the Canada Tungsten Mine and

200 miles southwest of Norman Wells. Ski- or pontoon-equipped, fixed-wing aircraft can land near the northwestern edge of the area on O'Grady Lake at appropriate times of the year. The topography is very rugged and a helicopter is invaluable for reaching areas distant from O'Grady Lake.

History:

The geology of the area was mapped by the Geological Survey of Canada between 1970 and 1966. Dynasty Explorations Ltd. prospected the area in 1969, but no claims were staked. In 1971, P. Risby staked the RA 1-8 claims to cover an antimony showing and the PR 1-20 claims to cover a copper showing. Later in 1971, Arrow Inter-America Corporation examined both these claim groups and subsequently optioned the claims covering the copper showing, and obtained prospecting permit 288 to cover the surrounding map area.

Description:

Middle and Upper Paleozoic limestone, dolomite, shale, argillite and sandstone, intruded by three Cretaceous granitic stocks underlie the permit area. A large stock lies southeast of O'Grady Lake and two much smaller stocks are exposed in the southeast corner of the quadrangle.

A metamorphic aureole which rims the Cretaceous intrusives varies in width from 200 feet to 1,500 feet, and is a rust colour as a result of weathered pyrite and pyrrhotite. Minor amounts of sphalerite, galena, molybdenite, fluorspar and chalcopyrite locally accompany the iron sulphides.

The stibnite showing covered by the RA claim group occurs in a steeply dipping fractured zone within limestone. This zone varies from 12 to 20 feet in width and has a vertical extension of 70 feet or more. Boulangerite, jamesonite, galena and arsenopyrite are associated with the stibnite.

The chalcopyrite occurrence is covered by the PR claim group, and is within flat-lying, bedded, limy metaquartzite. The copper zone averages five feet thick and grades 0.70% Cu.

Current Work and Results:

In 1972 Arrow Inter-America Corporation obtained prospecting permit 288 covering NTS 105 I/15. Helicopter supported reconnaissance mapping and detailed prospecting were completed during 1972, and a number of small showings were found around the periphery of the granitic stocks. As the showings are all small, no claims were staked.

MACTUNG PROPERTY
Amax Exploration Incorporated
7 King Street East,
Toronto, Ontario.

W
105 O/8
63°17'15"N, 130°08'45"W

References:

Findlay (1969a, 1969b); Green (1965); Green and Godwin (1963)

Property:

BORDER 11	T36325	JILL 1	
BORDER 14	N34186	JUDY 1-18	N41417
GLORIA 1	T13619	PIX 1-5	T37514
GLORIA 2-15	T13602-15	PIX 6-21	T34601-16
GUT 1-24	A33627-50	PUP 1-17	T34789-505

Location and Access:

The Macmillan Pass tungsten property is located on the Yukon-N.W.T. border 5 miles northwest of Macmillan Pass and 120 miles northwest of Ross River, a few miles by bush road from the Canol Road.

History:

The property was staked in 1962 by Southwest Potash Corporation of Canada, a subsidiary of American Metal Climax Incorporated.

Limited surface exploration and sampling were carried out in 1963 and 1964, after which the property was idle until ownership was transferred to Amax Exploration Incorporated in March 1967. Reconnaissance geochemical and geological surveys and prospecting during 1967 led to the drilling, in 1968, of five holes totalling 4,647 feet.

Description:

The area is underlain by a thick succession of shelf-type sediments ranging in age from Proterozoic to Devonian. These are intruded by Cretaceous quartz-monzonite and granodiorite stocks. On the Amax Exploration Incorporated property, a 1,000 to 1,500-foot thick section of argillite, argillaceous siltstone, impure limestone and dolomite strikes west and dips moderately south. The sedimentary rocks, are intruded by two small quartz-monzonite stocks and have locally been metamorphosed to pelitic hornfels, skarn and marble. Disseminated scheelite is largely confined to a dark skarn developed in calcareous sediments along the

southern contact of a granodiorite-quartz monzonite stock. The stock is cut by veins of quartz and tourmaline, some of which contain scheelite and molybdenum.

Four horizons of skarn are present. The lower skarn is exposed on surface for 2000 feet where it has an average thickness of 40 feet. The skarn consists of pyroxene, pyrrhotite, scheelite, garnet and a minor amount of chalcopyrite.

Current Work and Results:

The 1968 drilling and 30,000 feet of drilling in 1971 and 1972 have located four skarn zones. Only the lower zone has been delineated in detail. This zone is 1500 feet long, 480 feet wide, and approximately 60 feet thick.

FORTUNE HARBOUR CLAIMS
Fortune Harbour Exploration Ltd.
703 - 5th Street Southwest,
Calgary 2, Alberta.

Bentonite
107 B/7,8,10
68°32'N, 133°42'W

Trans-Canada Resources Ltd.
1980, 1055 West Hastings Street,
Vancouver 1, B.C.

References:

Aitken et al. (1969); Chamney (1969); Norris et al. (1963);
Yorath et al. (1969)

Property:

CP 1-16	A15770	RAN 1-26	A15647
GEL 1-18	A15598	RUD 1-36	A15734
GO 1-37	A15596	WAL 1-36	A15627
MAC 1-36	A15701		

Location and Access:

The 205 claims listed above are located in the Mackenzie Delta 15 miles due north of Inuvik. A winter road from Inuvik was available to reach the property during 1969-1971.

History:

The claims were staked to cover possible occurrences of bentonite in this area close to Inuvik and the Mackenzie

River. Bentonite has been reported in outcroppings of Cretaceous rocks farther east (Aitken et al. 1969).

Description:

The claims are located in the ancestral delta of the Mackenzie River and are underlain mainly by poorly consolidated Cretaceous marine shales, clay and mudstones.

Outcrop in the claim area is practically nonexistent.

The following stratigraphic sequence was derived from oil exploration data and Geological Survey of Canada work in nearby areas.

<u>Series</u>	<u>Map Unit</u>	<u>Thickness</u>
TERTIARY	unconformity	
	Upper	
	Pale Shale	600 ft.
	Bituminous Zone	100-350 ft.
CRETACEOUS	disconformity	
	Lower	
	Bentonitic Zone	400-750 ft.
	Silty Zone	1,200 ft.

These rocks have not been seen in outcrop on the property but from published data have the following characteristics:

The "Silty Zone" unconformably overlying older rocks of Paleozoic age dips toward the north and northwest at angles measured in feet per mile. The base of the formation is composed of sandstone and clastic sediments overlain by an upper section composed largely by siltstone and mudstone.

The "Bentonitic Zone" conformably overlies the Silty Zone and is composed of a succession of uniform soft plastic shales.

The "Bituminous Zone" deposited disconformably on the Bentonitic zone, is composed of dark shale with bedded, yellow jarosite rich horizons.

The "Pale Shale Zone" conformably overlying the Bituminous zone, is composed of light coloured shales with minor amounts of mudstone. The material making up this zone is characteristically of low specific gravity.

Current Work and Results:

During 1971 Trans-Canada Resources Ltd. conducted 2 drilling programs to test the Cretaceous formations for bentonitic clays.

Drilling was completed successfully in spite of ice lenses and ground temperatures of around 15°F, which required special drilling procedures.

A high percentage of surface water as ice was encountered in the holes which was considered surprising because the claims are on a height of land.

T.P. Chamney of the Institute of Sedimentary and Petroleum Geology in Calgary studied the microfossils from the drill cores and reported they included microfossils of ages equivalent to that of the Bentonitic shale zone.

No bentonite was recognized in the core by visual inspection and later chemical testing showed a maximum of 1%.

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